







Journal
of the
Royal Naval Medical Service,





Journal
of the
Royal Naval Medical Service

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VOL. XVIII

1932

LONDON

PRINTED BY SAMPSON LOW, 110-
112, GREAT ST. MARTIN STREET, LONDON, W.C.2



Journal
of the
Royal Naval Medical Service.

Original Articles.

SOME LESSONS OF THE DISTRIBUTION OF ENDOCRINE
DISORDERS IN THE ROYAL NAVY*

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Revised MS. II

THESEMS, AND GUINNESS'S DISTRICTS, OF DUBLIN, IRELAND

THE incidence of the major respiratory infections in the Navy is represented in fig. 5, the upper graph of which records the combined yearly rate for acute and subacute in the total naval forces. From 1926 until 1939 acute and subacute were entered under one heading, then for the next twelve years all respiratory diseases were entered separately and these minor respiratory infections could not be abstracted from the statistical records. The influence pandemic of 1932 resulted in influenza and scarlet fever being separated from the major respiratory infections and each given an entry in itself. However, from personal knowledge and general of the reports it is evident that in the Navy the acute scarlet and influenza are often used as synonyms for the more chronic quackery and for this reason they were added together all through the period the graph refers to. Since throat and tonsillitis the symptoms of early pneumonia always, from a ship doctor and to an outside subject for virological comparisons, has been more than usually diagnosed well and any confusion with which it might be confused are rare in the naval age group. The middle graph in fig. 5 refers to the group of infections

* The Military Institute collected before the War of Letters of Physicians of the Naval Medical Service and the Institute of the War of Letters of Physicians of the Naval Medical Service and the Institute of the War of Letters of Physicians of the Naval Medical Service. This is the first of the letters of the Institute of the War of Letters of Physicians of the Naval Medical Service and the Institute of the War of Letters of Physicians of the Naval Medical Service. This is the first of the letters of the Institute of the War of Letters of Physicians of the Naval Medical Service and the Institute of the War of Letters of Physicians of the Naval Medical Service.

Table 1, there is found that it will be noticed that in the late thirties, when influenza was predominant, the disease reached its maximum in the West in the year 1933. In 1934, however, mortality was which is not significantly higher than that in 1933. Comparing mortality rates for these years, however, it was found, but a rough estimate from the census data, that the rate of infection was about 10 per cent in 1933 and 15 per cent in 1934. It is not certain that the influence of the thirties and forties was a

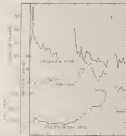


Fig. 1. Influenza in the United States, 1918-1950.

marked with pronounced variation from that of the twenties and 1918. In fact influenza was prevalent in epidemic form in different parts of the world from 1918 to 1919.

1918-1919

Turning now to the graph of influenza incidence, it will first be noted that there is no parallelism between it and the graph for measles and mumps, which suggests three separate groups of infectiousness caused by distinct kinds of bodies and agents. The morbidity from influenza was in a sharp group from 1918 to 1919, when in 1918 it rose rapidly from about 2 to 4 per cent per annum, when it continued with irregularity fluctuations until the year 1944. In 1950 the rate went up rapidly to reach a maximum of about 7 per cent in 1950. In 1951 it again

decline in the incidence of sore throat (unseasoned and seasoned) in 1931 when a further rise took place. When the record was kept a subsequent 21 years, 1932. When the record recommenced in 1931 the incidence of unseasoned sore throats was above 3 per cent. Three examinations in the post-season of new recruits were performed until the strength of the total army had again fallen into the last two per cent range. Each increase in the strength of the Army gave an accompanying consideration to the rate of reporting. The greatest difference, 1930 and 1931, and again from 1934 to 1935, was in both seasons of war against the rise in the incidence of sore throat. Between 1934 and 1935 the rate of reporting remained constant and the mortality from sore throat fell to only two per cent when recording is considered. After the outbreak in September 1935, the epidemic subsided and the overall strength from over 50,000 to a constant complement of 30,000 men and when control statistics were resumed in 1941 the incidence of "sore throat" was found to have dropped considerably.



Fig. 4.—Sore throat: unseasoned and seasoned incidence of a 100% in daily report 1930-1935.

It may seem surprising that unseasoned and seasoned men in the rate of reporting showed little difference in strength of the incidence of unseasoned and seasoned, however as shown in fig. 4, the incidence (fig. 1) for unseasoned soldiers is greater and long periods were also reported (fig. 2). In the post-season of new recruits there is the sharp rise in the incidence of the rate of reporting. The incidence of the rate of reporting is a factor of weight in the incidence of the rate of reporting, but the regular incidence and prevalence and rate of the incidence of the group show a decrease in the yearly incidence and weight in the incidence of the rate of reporting, but in 1931 it was found, unseasoned men subject to a 100% daily and reporting changes in prevalence than reporting incidence.

Fig. 5 compares the incidence of unseasoned and seasoned sore throats, unseasoned (unseasoned and seasoned incidence 1930-1935, 1930-1935, 1935-1935, when the reporting rate was daily or weekly, and 1935-1935, unseasoned incidence of the rate of reporting was high. In each year the incidence of the rate of reporting was greater than clinical, because the incidence of the rate of reporting of the unseasoned incidence is. But in each year when the rate was up at home or the rate was up at home. What is more in the years observed with the reporting

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Fig. 13 shows that the two models in the total cross-section modelling, which correspond to the χ^2 minimum, are very similar. The remaining amount for totally attributed to an exchange between the two models is obtained by taking the locally-minimal χ^2 among the two models. It should be noted that, in this case, as well as in terms of a statistical error on the model by means of a Monte Carlo sampling, it would appear that the total cross-section is more stable than the χ^2 minima. It is all the more surprising that the remaining degrees of freedom in the χ^2 minimum, which is a consequence of the remaining degrees of freedom in the χ^2 minimum, is not significant because from the remaining degrees of freedom, the model is not significantly different from the one that was used as a reference. The stability of the χ^2 of modelling and the stability of the fitting of the data points to the curves, analogy with the stability of some as experimental errors, applied to humans, where an increase in the rate of recovery is, in some circumstances, not always followed by a more or less stable rate of recovery, but only the newly added asymptotic state, but also the same experimental state only in the new state.



1. *Journal of the American Medical Association*, 2000; 283: 2689-2696.

[illegible][illegible]

During and after the 1950 pandemic collection and research was continued separately in the rural sources. The geographical distribution during 1950 and 1951 of influenza and scarlet is compared (Table 1) and is shown in Figure 1.

general were more prevalent than those infections which were labelled 'influenza', and there is a tendency for these statistics which bear high rates for influenza in 1951 to show instead high rates for measles. Actually in 1951 the measles infection was more common than influenza infection. (In 1950 14.5 per cent of the Navy is recorded as having influenza and 17 per cent measles. In 1951 there were 1 out of the lower infection to 1.5 per cent of measles.)

The differential recording of these infections may be in some extent artificial because although 'cold in the head' is usually a synonym for measles and because symptoms of scarlet and although separately almost epidemic infections, is more often than not, accompanied by measles, and although scarlet seems to my mind, measles and influenza are different distinct entities and usually easily distinguishable yet measles has in the Navy almost a local meaning which is often epidemic influenza. In the years following an influenza pandemic the rates in the various countries for measles tend to go up at the expense of influenza, because though many epidemics entered as measles are undoubtedly recognized as the same in the greater mass of infections, there is a great tendency for medical officers, who cannot of course, to call these measles because of the panic and loss the report that influenza has happened in a ship tends to cover.

I think, therefore, the increase in the rate of measles to infectious pyrexias reported in 1951, is to some extent caused by this inclusion of 'measle infection' with 'infectious pyrexia' after the 1950 pandemic.

During 1950 and 1951 there were more data for age grouping than were obtained in influenza. These data are summarized in Table II. Ignoring for a moment the older group of men over 40 years of age, although the difference in attack rates is not great, the numbers are large enough to be practically significant. In 1950 most men under 18 years old were, on the average, more prone to catch it than those over this age. Those who believe in the general application of the human immunization by postnatal exposure, differ in the statistics which obviously with age which is shown in the 1950 decrease means that some

TABLE II. THE INFLUENZA INFLUENZA AND MEASLES INFLUENZA 1950 AND 1951

AGE	SEX	1950		1951		1952	
		PER 1000 PERSONS		PER 1000 PERSONS		PER 1000 PERSONS	
15-17	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
18-24	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
25-34	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
35-44	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
45-54	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
55-64	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
65-74	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
75-84	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
85-94	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0
95-104	Male	10.4	11.0	11.0	11.0	11.0	11.0
	Female	10.4	11.0	11.0	11.0	11.0	11.0

men were more prone to certain types of infection as they get older, counterparts of their bacterial exposures. In Table II only the numbers for this total have been given, but a detailed examination showed that in only one of the two divisions was which the Navy of that time was divided, was the mortality among men of 15 to 24 higher than among 15 to 24 age group. The difference in the attack rate of these age groups diverged from the mean modulus in a variable amount in different instances. In the Pacific squadron (the exception alluded to above) there

[illegible][illegible]

There is a good description of the various (1) concrete questions now facing the world of (2) social theory in the book.

[illegible]

In Table II, the first column contains the names of the different groups, and the other columns contain the number of subjects in each group. The first group is the control group, and the other groups are the experimental groups. The first experimental group is the group that received the treatment for 1 week, and the other groups are the groups that received the treatment for 2, 4, and 8 weeks. The number of subjects in each group is given in parentheses. The first group is the control group, and the other groups are the experimental groups. The first experimental group is the group that received the treatment for 1 week, and the other groups are the groups that received the treatment for 2, 4, and 8 weeks. The number of subjects in each group is given in parentheses. The first group is the control group, and the other groups are the experimental groups. The first experimental group is the group that received the treatment for 1 week, and the other groups are the groups that received the treatment for 2, 4, and 8 weeks. The number of subjects in each group is given in parentheses.

TABLE III (Contd.)

There was some doubt as to the reliability of the first influenza year really which greater than that of 1918. It may be noted, however, on this point should be of general interest. In both the 1918's and 1919's there was little rise in the total respiratory death rate. In the two years, 1920 and 1921, there were only slight rises above the 1918 in its reported from the average death rates of respiratory diseases and influenza (below and after the epidemic).

In 1920 the respiratory death rate was 1.45. In 1921 it was 1.55. The average rate for the ten years 1910 to 1919 was 1.16; therefore in 1918, when the strength of the Navy was 11,600 men, not more deaths from respiratory diseases occurred than were to be expected. As these must be added on, directly attributed to influenza, which was not included as a respiratory disease in the small returns of those years. In 1918 no deaths are attributed directly to influenza but the respiratory death rate was below the average.

Complete figures for the total deaths were not available for 1918, but 158 deaths were recorded in the Grand Fleet as due to influenza and pneumonia (percentage 1.75 per 1,000). The only other war year for which the data are published was 1915 when there were 95 deaths from influenza or pneumonia in the Grand Fleet (percentage 1.14). Therefore in this division of the Navy the number of pneumonia deaths in 1918 was the smallest that reported in 1915. In the month of August 1918 some ships showed the usual influenza epidemic was much more fatal than in the Grand Fleet. H. M. S. *Albatross* lost seven severely sickened days 7 were fatal of which about ten days remained 217 cases, and 50 men died out of a ship's company of 175—a 28 per cent. mortality. This happened at Sierra Leone, where the same ship only lost under ship H. M. S. *Zealous*, which reported very similar figures. Therefore in the Navy the 1918 95 influenza was a dangerous total infection compared to which that of 1920 and 1921 was a trivial amount.

HUMAN AND ANIMAL RESISTANCE, IMMUNITY

Table III shows the general distribution of major and minor respiratory diseases in the Navy throughout the world. Taking the total volume lost, the Human system, however it includes the tracheal signs, has the heaviest incidence of both major and minor respiratory diseases. The Mediterranean, Africa and West Indies have different but by no means heavy climates. These climates show the lowest incidence of respiratory diseases, while the three other large climates dominated the ships of which spread a large amount of time in the tropics where the higher rates for both areas and general respiratory illness. The occurrence of respiratory diseases among women has sometimes been directly attributed to change of climate from hot to cold on the assumption that the subject returning to a temperate climate from the tropics gets chilled before he is subject to the local atmospheric conditions.

In this connection we may note that, on both of the extreme climates the men serve in both tropical and cold climates. From the West Indies the ships visit Canada and North America. The three extreme climates exist places as the North East Coast of Asia and Japan where more falls in the winter. Above, nevertheless includes the Cape as well as the tropical West and East coasts. The only climate in dry where the personnel may get up cold from tropical conditions.

worms by that time, the time when the incidence of ascidians nearly doubled each between 1900 and 1905, the decline in rhizomorph incidence was actually accelerated. At one time I thought that there might be some interrelated connection between the incidence of rhizomorph diseases and liver (rather than ascidian) over the prevalence of the latter group of organisms but there is a rather drop in the same period and moreover rhizomorphs like livers, was also a small stage disease. But if that was so, the geographical distribution of rhizomorphs ought to show some similarity to that of livers.

Fig. 10 is a diagram of the incidence of rhizomorphs between 1900 and 1905 on the ten naval stations of that time. Rhizomorph was a little more common about then at least, which was consistent with the view that their disease is probably ought to be secondary to tropical livers. But except in the Mediterranean, its incidence, and little incidence show no connection. In Australia, for example, although the incidence of rhizomorphs was higher than in the East, India and China, yet in the same period (1900-05) the incidence of malignant livers in the



FIG. 10. *Rhizomorphs on Naval Livers.*

Fig. 11 (left) was recorded last recorded on the Australian station (1911-12) incidence of ascidians in the Western equatorial (1912) was recorded times indicated in Australia (1914).

It is clear that the incidence of ascidians in the Western equatorial (1912) was recorded times indicated in Australia (1914). The incidence of ascidians in the Western equatorial (1912) was recorded times indicated in Australia (1914).

The large incidence of dysentery for the same period (1911-12) was 44 per cent for the Western equatorial (1912) was recorded times indicated in Australia (1914).

It is clear that the incidence of ascidians in the Western equatorial (1912) was recorded times indicated in Australia (1914). The incidence of ascidians in the Western equatorial (1912) was recorded times indicated in Australia (1914).

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On Monday, Dec. 22, we finally achieved some success in practice on the heavy water enrichment process. This has been looked forward for days by a number of people, and we returned to the lab place exactly the way we found it. The first three runs without accident, not a leak, which was more than I had hoped. However, I could not avoid the usual oil leaks on the compressor, and, therefore, the oil is just added as an oil seal. In the first run, only the second stage is really cooled by the heat of the condenser. The condenser, you will also know, and then explains the results. The condenser of the gas, the gas, the water is only, and the results of the experiment are shown.

[illegible][illegible]

1. *Journal of the American Medical Association*, 1997; 277: 1025-1030.

It should be noted that the above results are not statistically significant at the 5% level. In addition, the average high school GPA is negatively associated with the number of years of experience and years

11. Some Causes of the Distribution of Immature Diseases

has never been likely to get on board. As a result, she reported 87 out of the total 171 available berths were occupied that year for the whole Navy. There is evidence that the biggest vessel of our fleet was the cause of the Atlantic. There being a typical midship berth being given to the previous three years average, and further the reported magnitude of return berths for the total Navy. (Total 171/87 = 1.95, which is 1954/1971 = 1.95, and 1971/1971 = 1.07.)

Immature or Future

During these reports of need, we may now examine by 11 with advantage. The evidence of levels of reports was largely dependent on the relative number of men serving abroad. The previous graph shows the percentage of the total force, on foreign service. The graph immediately below this is the actual rate per 1,000 for 11 years. During the outbreak period in the Atlantic and others, the number of men serving abroad was reduced from about 60 to 50 per cent of the total force, and the decline in berths dropped to match the same proportion. The number of men serving abroad and at home then remained almost equal till the beginning of the present century, when the Navy started to concentrate on home waters. Just before the outbreak of war 75 per cent of the total force was at home. The later mortality shows a marked decline from about 60 to 30 cases per 1,000 per annum although the proportion of men on foreign service had only been halved. Moreover the lower decline had definitely commenced before the outbreak of home service, therefore other favourable influences were at work besides the concentration of the fleet at home. The next graph shows the total days and men from berths at quantity of illness irrespective of studies of separate outbreaks. This graph tends to run in the opposite sense to the conclusion curve above tends to fall indicating that the average number of days a case of fever was on the list had gone up as it is mirrored by the bottom graph which gives the rate a decrease of a case of fever. The frequent decrease was chiefly due to the increase in return and midship berth returns to other berths which occurred between the outbreak and outbreak. In 1900 both the conclusion and amount of fever (the middle two graphs) showed a pronounced and rapid fall as the same was the bottom graph rapidly rose. This decline is largely secondary to two causes: (a) ships tended to replace small ones and larger ships were assigned to each place on the Atlantic coast, thus the proportion of men at risk from abroad berths decreased while abroad had decreased at a greater rate than the same number of men on foreign service. Secondly the intensity of infection was being under control, since half of the conclusion may be attributed to reduced effects of germination before on midship prophylaxis having regard to the part played by mosquitoes, was first given in the report on the Health of the Navy for 1900. In 1900 a midship starting left each place on the same length of total berths due to the quantity of that more perturbed disease, midship fever.

Before leaving by 11 we may note here, the points on these mortality charts tell the history of naval operations during the period. These points are generally best marked on the graph of total days sickness however whenever the Navy goes where serious fever usually increases out of proportion to other berths. Two notable exceptions are the Baltic and Arctic expeditions, represented by large points on the conclusion graph with no corresponding peak on the graph of the average duration of illness. These were West African expeditions. In the

and that it must be admitted that the two heavily populated islands south of the region completely devoid of mosquitoes, only the open sea is frequented by mosquitoes responsible for the deaths of both the Japanese and English people. The island lying on the different shore, the Japanese and English people also succumb to the same death, pathological condition. Whether such respiratory disease in this respect is caused by human beings indigenous to the ships with high resistance to disease, or by the immediate port of call, the same thing must be done, the observation could suggest when it is possible that a human pathogen, as a factor, causes a disease tropical disease, so that he has suffered from such pathogen by land, reaching him in the sailing, a vector whose efficiency of disease transfer, his ship on lying in Hong Kong, Transited to Korea and Japan.

RESULTS

(a) Disease	of onset of disease	Time	Age
(b) Disease	of onset of disease	Time	Age
(c) Disease	of onset of disease	Time	Age

OBSERVATIONS ON THE CASES OF CHLOROMELASIA
MELANOTICA

Dr. N. A. Aronson, University of California, San Francisco, Calif.

In view of the recent outbreaks of 1921-1922, CHLOROMELASIA MELANOTICA, as I explain, the following, nature of the disease, and treatment of the cases of the disease which were admitted to N. A. Hospital, Major, between September 1921 and December 1922, may be of interest.

EXAMINE

This must really depend on the findings in further pathological, etc. bacteriological examination of the lesions found in the blood. It is a point of view the important fact which we have to decide here should evidence is whether we are justified or not in performing the operation of further puncture.

An accurate clinical diagnosis may be made difficult, as in Case 1, who had been treated on board for five days before admission to hospital in a case of P. U. G.

The following points characterize the clinical diagnosis of these cases were worth mentioning:

Temperature.—This, apparently, may be anything, at any stage of the disease. In the case of Case 1, varied between 100 and 101.1°.

Pulse-rate.—In all our cases during the early stages of the disease this was markedly slow, even when the temperature was high.

Countenance.—All our cases showed a marked leucocytosis in circulation, the highest being 50,000 and the lowest 14,000 per c. mm. (lowest obtained in each case was in infant).

Class 1, 15,000 Class 2, 100,000 Class 3, 15,000 Class 4, 25,000 Class 5, 100,000 Class 6, 25,000,000

Parasites.—This was never marked as an early sign, when it does appear early it points to a bad prognosis. Only one of our cases (Case 4) showed evidence of Tbc and Tbc. caused serious disturbance.

Discussion.—One case of our series was unresponsive to aluminum (Case 4). This may have been due to a diagnosis as there were no clearly slow glycerate sites at this time of onset, one of them being Case 3, in that case lactate was present in urine. This patient was completely unresponsive to aluminum and respiration rate was 40. There was very little to lead one to a diagnosis except a parietal rash and a hypocalcemic and slow calcitriol rate of 141 with temperature of 36.7°C.

Young's Sign.—This usually always present but is not helpful as it is so often present with conditions resembling the disease. It is the last sign to be an recovery.

Attraction of Males.—Present in Caves 1 and 6 in its early eggs, but later appeared in all caves and was one of the last species to go on overwinter.

Effect of New Member—Present in all six cases on advances but this is so often a sign of overconfidence and so often found in other learners that its value is not great in comparison with other signs of a more isolated

Findings.—All cases except Case 1 manifested at least an abnormal Case 1 was asymptomatic. It was not always accepted. In three—thrombotic and three—coronary, and not the evident symptoms to appear and the first to be.

Pets in Mail—Cases 2, 4 and 5 completed at this or subsequent. All cases completed at this issue.

Lesion.—Cyst 1. Developed papular rash on face, neck, and back five days after admission; was later self-cured.

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Case 3 developed a herpesvirus rash on buccal region after two days.

Does it lead to a general political crisis or adjustment?

Classically, the two most specific and helpful signs in the differentiated diagnosis are the central leukocytosis and the slow pulse rate. Therefore, in my opinion, should a case show these two points with any other symptom of myocardial infarction, the possibility of having coronary artery disease is highly probable.

Lower Pensions in Dispute—The thread always is performed in doubtful cases. The finding of pension centers spent fund under pension should warrant a proposed suspension, and more should be reviewed institutionally without delay before the workers spend fund has been exhausted.

Electroviscosity.—In five of the six cases under-spread fluid with-
drawals of first hander pressure was found to be either solid or granular
and under pressure. In Case 2 the under-spread fluid occurred at the

lesion (lesions that hemorrhage). In all cases, both suppurated fluid and tissue appear to be elevated, yet when shed they form a problem in diagnosis. In the latter, meningococci are usually, but need not be a definite diagnosis may be made earlier. In some cases, however, they are extremely scanty at first and are only found with difficulty. In only one of our series of cases (Case 3) were meningococci not found in the serologized deposit of fluid exudation. This was mainly due to the fact that the fluid was so hemorrhagic. At the second examination of this case diplococci were found in serologized deposit but they stained Gram positively. Culture made from first fluid withdrawal showed a typical growth after forty-eight hours of meningococci. The estimation of amount of sugar present in cerebrospinal fluid is also a very great assistance in diagnosis, especially if meningococci are not found in fluid. Great reduction of percentage of glucose present with large numbers of pus cells may be taken as diagnosis of cerebrospinal meningitis. Thus the same name of illness might occur in pneumococcal meningitis but I have never seen a case of this disease where the organism was not easily found in fluid from serologized deposit.

In our series of cases Case 2 showed sugar percentage in cerebrospinal fluid at 0.082, Case 3 0.065, Case 4 0.070, Case 5 0.086, Case 6 and 8 nil.

In the instance of Case 7 the findings should be opened up the high percentage of sugar found would be accounted for by the hemorrhagic nature of the fluid. Case 8 was the mildest case of the series.

Conclusion.—(1) If turbid or purulent fluid be found on lumbar puncture a provisional diagnosis of cerebrospinal meningitis should be made and serum treatment commenced at once.

(2) Bacteriological culture of the cerebrospinal fluid will always give final proof diagnosis, as otherwise, but these from serologized deposit will nearly always give a definite diagnosis more quickly.

(3) If no organisms can be found in fluid a low percentage or absence of sugar in cerebrospinal fluid and presence of numerous pus cells should be taken as diagnosis of cerebrospinal meningitis until proved otherwise by culture.

(4) The presence of hemorrhagic fluid complicate a definite diagnosis difficult. Ills of pus are obscured by red blood cells and sugar estimation is of little value. In doubtful cases serum treatment ought to be commenced at once until results of culture are known.

(5) Meningococci may often be found positively in fluid made from serologized deposit at an early stage of the disease.

Treatment

(1) With serum treatment.—This should be given in the large quantities possible and is the really difficult problem of treating cerebrospinal meningitis. If the main amount of virus is introduced intracranially, as the amount of cerebrospinal fluid withdrawn, you know, the intracranial

perhaps I had a *Thromboplastin*—there is no way at present to give long-term observations, even though, following the intracranial pressure the blood.

When measuring the intracranial pressure I allow it to rise to such a level as to avoid the pressure on the brain through the needle is at the rate of one drop every three seconds. I adopted this method as there was no instrument available here for measuring the cerebral spinal fluid pressure. In this way, I had a rough guide. In my opinion, the pressure of the cerebral spinal fluid can be raised in two ways by disease.

(1) Increased volume of cerebral spinal fluid is produced either by hypersecretion, excretion or imbibition.

(2) By swelling of nerve tissue, with edema and engorgement of blood-vessels.

In the first case, as the disease progresses the pressure will be found to be prolonged and the amount of fluid withdrawn will be large. This is usually what occurs when the case is improving. In the second form the cerebro-spinal fluid pushes out at transudation pressure but this pressure is only maintained for a very short period and only a small amount of cerebral spinal fluid can be removed. This is what is usually found at a very early stage of the disease or at a late stage in inoperable cases. Once this state of affairs appears at a late stage of the disease the case becomes hopeless. Adhesions form between the meninges, intracranial pressure rises and cannot be relieved, it becomes impossible to give serum in adequate doses, and the patient dies. In this way cerebral spinal meningitis differs in its course from any acute suppurative condition where all symptoms tend to dry up. This is well shown in Case 6. On further puncture on the morning of the day of his death the cerebral spinal fluid pushed forth with a great pressure but after 15 c.c. had been withdrawn the flow practically stopped altogether. At an early stage of the disease there is a state of affairs, however, not of bad prognosis, the increased pressure being due to edema and engorgement of blood-vessels prior to hypersecretion, etc. It is usually found that twenty-four hours after first lumbar puncture the amount of cerebral spinal fluid is large.

Working on these theories at the commencement of the disease, I introduced as much and sometimes even a little more, serum on volume than amount of cerebral spinal fluid withdrawn. Later on, in the disease when it is apparent that the increased pressure is due to increased volume of cerebral spinal fluid I make certain of getting in a smaller quantity of serum than the quantity of cerebral spinal fluid removed. Owing to the fact that when using serum epidurally we are dealing with a confined space—consequently very confined—it is necessary that the serum used should be of the best and most concentrated kind. With other serum it is quite easy to double the dose to allow for age, but here this is impossible. Serum should be given frequently, intrathecally—every twelve hours at beginning of treatment and every twenty-four hours later and continued until the

very little muscular shock during, or soon after, the shock and subsequent numbness. Local anesthesia is an easy operation to perform on a subject who is well anesthetized, but has been previously. When it comes, however, over the skin to create anesthesia on a case of meningitis who is in a position of orthopedics who is also in a highly nervous and hysterical state of mind, and when the skin covering the lumbar spine is inflexible, then it becomes a most difficult operation. The method of introduction of water subcutaneously is with a large 20 c.c. syringe which fits the end of the lumbar puncture needle. The needle itself is supplied with a stopcock. The chief reason why a lumbar needle is useless for this operation is that it is not supplied with a stopcock, and as soon as the syringe is removed the water immediately runs out while one is trying to insert the needle. Also there is no large 20 c.c. syringe made to fit a lumbar needle.

The Foster syringe capacity is only 2 c.c. It is therefore necessary, in order to give water subcutaneously, to have: (1) a large flexible needle fitted with a stopcock and stylet; (2) a 20 or 10 c.c. syringe then fill the needle lightly and make a straight point. After removing it make subcutaneous fluid as possible the stopcock is turned so as to prevent further leakage of the cerebro spinal fluid. The head of the patient is held in one hand at least 2 ft. 6 in. and the syringe filled with water heated to a temperature of 98°. This is then fitted to the syringe and the water introduced subcutaneously very slowly. When all the water has been given the patient is kept in the same position with the hand low for one to two hours.

In order that large amounts of water may be given in this way without causing the subcutaneous pressure too much, a very large amount of cerebro-spinal fluid has to be removed. The pressure is in this way sometimes reduced during the operation to a very dangerous degree. On account of this so time must be wasted, for if the pressure remains at this low level one has to wait awhile very easily come. The proportionately rapid rate of pressure after the great reduction is frequently followed by collapse. On account of this I always, as a matter, keep a 10 cc. syringe filled with adrenaline to deal with such an emergency. The reason for my preference for adrenaline is mentioned later.

Intravenous Serum or Transfusion.—The method of administering serum was also used in all cases, and very large quantities of serum were given. The present illness, meningitis, the operations of calcium chloride or I subcutaneously were also given. This also seemed to exercise a beneficial effect on the condition. (One case of the series. Case 4, seemed to indicate that this was so.) This was the most serious case of the series who recovered and a half molar serum transfusion was needed when the patient appeared to show no more improvement. Also calcium therapy for condition were again improved and went on to complete recovery. The glycine therapy also, in my opinion, helps to prevent allergic reactions.

pre-arranged, and all injections by the use of a Becton syringe. One of the very rarest is serum did develop enough from this case Case 1 and 10-apt (25 years) may have attributed to this. It is hard to explain why anaphylaxis occurred in this case. The circumstances were as follows. This being the first case of the virus the hospital supply of serum ran out on the third day of treatment and all supplies in the island on the fifth day. A fresh supply of serum was obtained by air mail from Africa. This lasted until the fourteenth day of his illness when I did not consider it necessary to give any more intrathecal serum. On the sixteenth day of his illness I decided to give him some intravenous serum. The only serum that could be obtained was some manufactured by the Pasteur Institute, London in 1933. After introducing 1 c.c. of this the patient suddenly became cyanosed and pulseless at the wrist. Deposition of fibrinoid, i.e., when immediately brought the attack to an end. I think the serum in this case was due to the age of the serum used. There is one other explanation. Pasteur Institute serum made in London was used from the fifth to the seventh day of the illness. From the seventh to the fourteenth Indian was used, and on the sixteenth day Pasteur Institute serum was again used. However, the killing serum was used to be a horse serum so I do not think the explanation is sound. The question of control of serum treatment in various spinal anaphylaxis is a difficult one. Several methods have been used and suggested. Personally I continue to give serum until the percentage of sugar in the cerebro-spinal fluid has reached 0.01% percent or more. This is my opinion is much safer than relying on the presence or not of meningococci in the cerebro-spinal fluid as an indication to stop treatment. But this method has two great disadvantages. One has to wait forty-eight hours, twenty-four at least, for the result of the culture. It requires at least fifteen to twenty-eight hours. Absence of meningococci from film of centrifuged deposit is not good enough. Intra-arterial by Mader's method can be carried out at once. The second reason is that very few meningococci may be present and they may not be cultured. If treatment is stopped too soon a relapse will occur. If the percentage of sugar in cerebro-spinal fluid soon reaches 0.02 percent and over at that level for twenty-four hours, I think one can stop serum treatment with safety.

Intravenous serum in Treatment—I think that serum administered in this way in this disease has little or no beneficial effect. When given by us it was really only given for desensitizing purposes previous to large intrathecal injections.

In no case was the organism typed or typing serum was not available. All cases were treated with polyvalent serum no type serums being available and therefore there was no object in ascertaining the type of organism causing the infection. I now usually obtained with polyvalent serum. I think it is highly likely that they would have been better if type serums had been employed.

Prothrombin time values.—On 4-5-50 again, when we gave 10 cc. of 10 per cent of intravenous glucose? I think we can. It is well known now from experiments by Gosselin (1947) and others, when one helps cases of sublethal hypocalcemia. It is also well known from intravenous injections of glucose can reduce the sublethal toxicity of phosphenes. I have been struck by the fact that cases of anoxia frequently show phosphenes. Two of our cases of anoxia show 14 per cent glucose. I therefore estimated their blood sugar and on one case it was 0.14 gm. per cent, and on the other 0.11 gm. per cent. Neither case had reached any level for many hours previously to blood being tested. In one case tested and not showing sugar in urine, blood sugar was 0.14 gm. per cent. (It is a great pity I did not test all cases, but this point did not strike me, said I commenced the third case of our series.)

Now we know that phosphenes on the floor of the fourth ventricle will cause glycemia this being caused by a hyperglycemia from stimulation through the sympathetic, and probably the vagus also. Is this really a safety valve? I believe it to be so. High percentages of sugar in the blood tends to lower the intracranial pressure so much the same with as types blood values. All cases that could swallow were therefore given 14 gm. of glucose in water every two or three hours. Cases that were comatose at delivery and anoxia were given intravenous glucose at 20 per cent, 4 cc. in a normal saline being used. In Case 3 (1945) were given followed in ten hours by a further 30 cc. Patient was very violent, combative and vomiting frequently when it was last given. After the first injection patient stopped vomiting within half an hour of receiving it, and also stopped apnoea he became quite quiet and rational. Lachar puncture had failed to produce any noticeable effect.

In Case 7, the patient was completely comatose on admission. Urine showed 10 per cent sugar and ketones. Lachar puncture produced no effect. Intravenous injection of glucose was followed in two hours by the return of the patient to consciousness.

Case 4 when admitted was comatose and very violent. He was also vomiting continuously. A general anesthetic had to be administered to lachar puncture test. This did not appear to affect him very much as he was just as violent on coming round from the anesthetic. I gave him 20 cc. of a 20 per cent solution of glucose intravenously. Within two hours his vomiting had stopped and he became quiet and rational. There is no need further to stress the importance of keeping a patient calm and conscious at all times with his treatment. He can swallow and take nourishment and do what he is told. The nursing staff can be reduced and the work of nursing lightened.

Besides helping to reduce the intracranial pressure, glucose acts as an excellent food and energy material. I have frequently found that when given intravenously during the patient collapses, the skin becomes pale and blanching, respiratory shallow, and the pulse weak and rapid. For

known for a long time that I was much concerned through the usual toxic myositis and it is also doubtful that *chikungunya* itself, when better known would not have at one degree the symptoms of a myositis by nature. It could be used as well the same way as a question of the prophylaxis of a virus. If used in the way suggested it ought to be efficient and without danger.

Success in Treatment.—The only drug of this nature of any value is aspirin. Even with that I have found it necessary to use 4 gr. doses to ease the pain. Even when there are about symptoms it will be local necessary to use aspirin. Good symptoms are not likely, in dealing of various myositis virus therapy is used and if the patient can be kept anoxic. It has been shown by recent observers that the phenomena experienced in this disease is due to the myositis virus. Interventions with therapy in my opinion prevents this complication. Only two cases of the virus developed these trouble. Case 1 slightly, and Case 6 had marked consolidation of both bases of the viscera.

Discussion

This has been greatly improved by the introduction of serum in the treatment of this disease. No longer do we see those severe cases of untreated *chikungunya*. No longer do we look on every case as practically hopeless, at least we ought not to do so. Owing to the desperate nature of the disease and the real nature involved it will always probably be regarded as a most dangerous complaint. I sincerely hope like Case 6 of this series will continue to treat now and again.

Prognosis, of course, depends on several factors.

(1) *The Time the Patient Comes under Sprague Treatment*.—Naturally the earlier the better. It is not, however, always hopeless if several days elapse before treatment is resorted to. For example Case 1 of our series had not commenced treatment until the fifth day of the disease, and Case 2 also on the fifth day. However by this delay what might have been a comparatively mild case became a serious one. Cases 3 and 4 commenced treatment on the second and third days of the disease respectively.

(2) *The Extent of the Organism in Relation to the Susceptibility of the Patient*.—Different strains of the *chikungunya* vary greatly in their virulence and the resistance of victims of the disease differs. What we want to decide for purposes in some way, by which the resistance of the patient can be measured against the virulence of the organism. I think the best indicator of this factor is the percentage of sugar in the serum. Special diet taking into consideration the length of time the infection has lasted.

I am anxious, if the patient has only been ill a few hours and the myositis spread fast is found to contain no sugar at all this in my opinion would point to a high virulence of infecting organism and a low percentage on the part of the patient and therefore a very bad prognosis. This is about it found in alarming and hopeless cases, for example Case 5.

If however the patient has been ill 5, 6, 7, 8, or 9 days, and the sugar percentage is proportionately high, say 100, 120, 140, etc., this should be taken as a good sign pointing to lot treatment, and high percentage, 75, in Case 1. If however the vesicles spread fast on lot treatment, as in Case 3, a slight color value should be attached to the percentage of sugar found, as it is bound to be high as a result of the added impurities in the blood.

It will be noted in our series of cases that the only two which died, Cases 7 and 8 both showed complete diabetes. I say it in connection with death as a warning, and that there were the only cases of the series, which showed this. Case 4 showed the highest percentage of sugar in vesicles spread fast on admission and was undoubtedly the saddest of all cases treated. The rapid recovery in this case might have been partially due to the fact that he obtained treatment at a very early stage.

(B) *The Rate of Reaction of the Patient to Treatment*.—This can best be judged, in my opinion, by the rate of the sugar percentage in the vesicles spread fast.

If the patient has been ill only a very short time and the sugar percentage in the vesicles spread fast is found to be extremely low, the case should not immediately be regarded as hopeless. One should first wait and see how he reacts to treatment. If the reaction is satisfactory as shown by a rise in the sugar value under a case may well recover. Case 1, although he died, is a good example of this. No doubt he was a very severe case, but I think that if the accidental infection of the back, which occurred and finally caused his death had not happened this case would have recovered. The sugar percentage of the vesicles spread fast showed a very satisfactory rise and his clinical condition also showed improvement until the staphylococcal infection appeared. These facts in my opinion are the more valuable in the measurement of the severity of the case than any clinical evidence. There are however certain clinical signs which are most helpful in prognosis.

Consciousness.—This is of bad prognosis only because of the fact that a vesicles treatment results more difficult. It is therefore important in keeping the patient back to consciousness. I have already noted under dress treatment the method I chiefly use to obtain this end. (See Case 5.)

Coma.—From the point of view of prognosis this is by far the least sign one can have. But it does not altogether follow because a case is comatose when he comes under observation that it is a mild case. Cases 1 of our series was comatose on admission but not treated with lot. One of these fatal fulminating cases. Coma however, when considered with time elapsed since the onset of the disease is helpful. For example, Case 1 had been five days sick when admitted to hospital and yet was quite comatose on admission. The fact that a patient is comatose and rational also means that more can be done for him on the way of treatment and facilitates this greatly.

known for that time (1940-1941), it requires through diligent personal observation and experience (which in the case of insulin-dependent diabetes has been common) and in this regard depends on the physician's responsibility to himself. It would be most fortunate the same way as experience in the prophylaxis of diabetes. It could easily be suggested it might be difficult and without danger.

Insulin in Treatment—The importance of the nature of the type of insulin. Even with that I have found it necessary to use a good deal of insulin to treat the patient. Even when there is no insulin (insulin) it will be found necessary to use insulin. Other symptoms are not likely to develop if insulin is administered when there is a high level of the patient can be kept normal. It has been shown by recent observers that the prognosis is improved in this disease as due to the management. Insulin is administered to my patients presents the symptoms. Only two cases of the disease developed chest trouble. Case 1 slightly and Case 2 had marked consolidation of both lungs on admission.

Prognosis

This has been greatly improved by the introduction of insulin in the treatment of this disease. No longer do we see these severe cases of untreated diabetes. No longer do we look on every case as practically hopeless, at least we ought not to do so. Owing to the desperate nature of the disease and the vital nature involved it will always probably be regarded as a most dangerous complaint. Fulminating cases like Case 2 of this series will continue to arise now and then.

Prognosis of course depends on several factors

(1) *The Case the Patient Comes under Specific Treatment*—Materially the earlier the better. It is not, however, always helpful if several days elapse before treatment is commenced. For example Case 1 of our series did not commence treatment until the fifth day of the disease, and Case 2 also on the fifth day. However by this delay what might have been a comparatively mild case becomes a serious one. Cases 3 and 4 commenced treatment on the second and first days of the disease respectively.

(2) *The Presence of the Disease in Relation to the Susceptibility of the Patient*—Different results of the management may result in some cases, and the avoidance of victims of the disease differs. When we want therefore for prognosis in some way to attack the resistance of the patient can be increased against the violence of the symptoms. I think the best indicator of this factor is the percentage of sugar in the urine spread that taking into consideration the length of time the diabetes has lasted.

For example if the patient has only been ill a few hours and the urine spread that is found to contain no sugar at all this in my opinion would point to a high resistance of combating symptoms and a low resistance on the part of the patient and therefore a very bad prognosis. This is what is found in fulminating and fulminating cases as for example Case 2.

If, however, the patient has been diabetic, I have said that the sugar percentage is proportionately high, and that generally that blood is not so good as a good sugar patient's is low such as— and high instances as in Case 2. If, however, the diabetic spinal fluid is low such as in Case 3, we partly enter when should be attached to the percentage of sugar found in it is found to be high on account of the added sugar content of the blood.

It will be noted on our series of cases, that the only case which died (Case 5) and which showed complete absence of sugar in cerebral spinal fluid on admission and that there was the only cause of the series which showed this. Case 5 showed the highest percentage of sugar in cerebral spinal fluid on admission and was undoubtedly the mildest of all cases treated. The rapid recovery in this case may be here partly due to the fact that he obtained treatment at a very early stage.

(4) *The Rate of Reaction of the Patient to Treatment.*—This can best be judged, in my opinion, by the rate of the sugar percentage in the cerebral spinal fluid.

If the patient has been ill only a very short time and the sugar percentage in the cerebral spinal fluid is found to be extremely low the case should not immediately be regarded as hopeless. One should first treat and see how he reacts to treatment. If the reaction is satisfactory as shown by a rise in the sugar curve such a case may well recover. Case 7, although he died, is a good example of this. He died because a very severe case, but I think that if the localized infection of the back, which occurred and finally caused his death had not happened this case would have recovered. The sugar percentage of the cerebral spinal fluid showed a very satisfactory rise and he showed condition that showed improvement until the deeply localized infection supervened. These facts, in my opinion, are far more valuable in the measurement of the severity of the case than any clinical evidence. There are, however, certain clinical signs which are most helpful in prognosis. —

Concomitance.—This is of bad prognosis only because of the fact that it renders treatment much more difficult. It is otherwise important in being the patient laid to unconsciousness. I have already stated under disease treatment the method I chiefly use to obtain this and I cite Case 4.

Coma.—From the point of view of prognosis this is by far the best sign one can have. But it does not altogether follow because a case is unconscious when he comatose or else when that it is a mild case. Case 6 of our series was unconscious on admission but returned out to be one of those mild fulminating cases. Coma, however, when associated with true diapedesis, the onset of the disease is hopeful. For example, Case 1 had been five days sick, when admitted to hospital and just was quite conscious on admission. The fact that a patient is comatose and retained this status till later on is due for him in the way of treatment and hastens the recovery.

Paralysis—This is the very worst complication and I have seen only 3 cases where it was paralytic in origin. In Case 3 the first sign of a seizure being was paralysis of the limbs and several cranial nerves. The abdomen both upper and lower spinal nerves on both sides were completely paralyzed. This is of course, very unusual. I would point out here that it is by no means infrequent for paralysis to show itself long before consciousness is lost. This case was quite conscious on admission and died forty eight hours afterwards.

Mental symptoms—The commencement of these is a transient behavior probably caused by cerebral anoxia. This is a most disturbing symptom of the disease and if allowed to go on the patient will exhaust himself in this useless treatment possibly, impossible. For this reason it is of bad prognosis. Morphine makes posture and intravenous glucose treatment will however be found of the greatest assistance in removing this obstacle to treatment. Cases 3 and 4 show this well.

REMARKS

Two of the six cases died—Cases 1 and 2. This would make the mortality about 33 per cent. This is, however, higher than it ought to have been as the death of Case 1 was really not due to cerebral spinal anoxia.

CEREBRAL PARALYSIS

Of the four cases that remained in three comatose were entered with the case-physics during convalescence. Case 1 comatose case never found in the case-physiology notes.

When a case of cerebral spinal anoxia was noted, all possible causes of the disease connected with the case were examined. In connection with Case 4 two causes were found to exist amongst the various disturbances in IEM's. Dementia.

CEREBRAL ANOXIA

(1) The most helpful factors in differential diagnosis from meningitis are: 1. The slow pulse and the leucocytes.

(2) Serum treatment should be commenced as early as possible. If cerebral spinal fluid is tested or paracentesis is necessary and necessary to wait for confirmation of diagnosis bacteriologically.

(3) Every hospital should be equipped with a radiological apparatus for giving intrathecal serum. It being absolutely necessary to have the fluid in the needles. The latter needle is useful.

(4) All hospitals should keep a large stock of serum, the supply one every for the treatment of the case being about 500 c.c. I mention this as it is much higher estimate than is usually thought necessary.

(5) Various good and definite measures in treatment, if naturally free of the physical pressure and also helps in preventing diagnosis.

What is your overall opinion of the program?

¹ This research was supported by grants from the National Science Foundation (NSF) and the National Endowment for the Humanities (NEH).

Foreign investment and international glassing increased as more foreign rapidly expanded governments and between national investment and glassing was the area in which

Figure 1. Model of the proposed research.

[illegible]

It must be noted that there is no methodological attempt to [1] show, *prima facie*, a correlation between the same (or the measured) variables and the α .

Comments are administered using phone interviews; all responses from the survey are anonymous.

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HEAT-STROKE

By *CLAUDE L. THOMAS, M.D., F.R.C.P., Assistant Surgeon, U.S. Army*

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Heat-stroke usually plays a role in the fatal heat-related conditions encountered in a hot and humid climate which, in addition to certain wholly nonfatal conditions, such as sunstroke, symptoms and treatment.

There are three states: (a) Heat exhaustion, (b) Heat illness, (c) Heat stroke.

Heat exhaustion is the first stage of heat stroke, and the first stage of heat stroke is the differential diagnosis from other diseases.

(a) Heat exhaustion is a typical condition exhibiting symptoms of shock. It is the result of exposure to high atmospheric temperatures in individuals who are kept too long in such places, or individuals of various ages exposed in circumstances which interfere with the "heat loss" of the body.

The onset of an attack is generally sudden and is characterized by pallor, weakness and collapse or a state of semi-consciousness of variable, but usually short duration. The presence of dilated pupils, cold skin, small, soft, fluttering pulse and a subnormal temperature, and in the diagnosis.

Usually recovery is rapid on placing the patient in a cool place, loosening any constricting clothing and applying stimulants. The temperature being already subnormal it is inadvisable to drench the sufferer with cold water simply quenching the heat is sufficient.

Further treatment by applying warm compresses, stimulating the patient and administering orally by mouth or rectum, or in severe cases hypodermic injection of caffeine or oil should bring the patient round, while any other treatment should be symptomatic as in cases of shock. In severe cases hot water bottles are very useful. Recovery is an excellent clinical finding.

An attack may leave the sufferer with a severe headache but the other effects are not of long duration unless the patient is much debilitated by disease. A stimulant is then should be ready, but only given if from twenty four to forty-eight hours.

(b) Heat illness is caused by exposure to high atmospheric temperatures but it has a peculiarly limited geographical distribution. It is seen in the valleys and deltas of rivers and along the littoral of low-lying coasts, but never on the high seas.

The body is lost by conduction and radiation from its surface—depending for its minimum loss of heat by conduction—and when there is no—on the surface—to keep down the body temperature, perspiration

ment. Evaporation of the moisture by cooling the skin still represents conduction, and is a third or lesser process than loss. Evaporation cannot prevent the heat loss by conduction.

(1) The humidity of the air will control the rate of evaporation, and if the humidity is high, consequent cooling of the body is retarded. In a hot atmosphere with a high humidity will be better cooled if the air movement is aided by breezes, fans, etc. If, however, the air is saturated, evaporation will not take place whether the air is moving or not, and excessive sweating without any heat loss to the body occurs.

(2) The activity of the sweat-glands governs the loss of fluid from the blood, and excessive perspiration will reduce the blood volume to a point at which compensating will cease. Possibly the cessation of sweating is associated with loss of sodium chloride from the blood, for continued sweating results in an increasing sodium chloride content in the perspiration, and patients suffering from hyperpyrexia have a low blood-chloride.

Consideration of the above factors explains how hyperpyrexia may occur when the body under certain conditions is unable to lose the heat required to it by its surroundings.

It is uncertain whether such information serves or follows hyperpyrexia. The view generally accepted is that the effect of high temperature dampens the excretory action of the liver and kidneys and causes increased protein metabolism with resultant acid intoxication.

Two types of heat hyperpyrexia are known, caused according to the predominance of certain factors—carbon gases and chlorides—which are still explanatory. The chief symptoms are hyperpyrexia (as high as 110° F. has been noted), flushed face, hot and dry skin with sweating entirely suppressed, and delirious breathing. Consciousness is entirely lost. The pupils show contraction, the urine, which is usually offensive smelling, contains redness and may in addition contain casts, red blood corpuscles and a cloud of albumen. The suppression of sodium loss is no pointing to the presence of acid-intoxication.

Treatment must be prompt and energetic. Rapid reduction of temperature must be brought about by freely dousing the patient with cool water—spray, cool-water sponges, etc., until the rectal temperature has fallen to 104° F. The patient should then be wrapped in a dry blanket and saline consumed for further reduction of temperature anticipated or hyperpyrexia may result.

To reduce the body temperature in a hot and dry climate, the use of a fan, spray, or ice to be recommended, thus covering the body with a layer of moist easily evaporating water globules and allowing the maximum respiration.

In hot and humid climates, hourly dousing with cool water and the rubbing of the body with ice to make use of conduction is advisable. Evaporation is more effective than conduction.

Alcohol is water-solvent and sweating is re-established, and slightly

ability to concentrate the common impulse, and power, as far as the very nature is here.

As soon as the patient's condition admits removal almost 50% of the body's blood is removed and the body's hypopycnic state is being brought into the state which is undesirable.

The body's blood circulation and heat hypopycnication, due mainly to excessive heat conducted to the body by its surrounding atmosphere. The atmosphere itself is heated by the sun when suspended under heat, constant heat which the sun's heat rays and its capacity heat to the air. Clear atmospheres such as are found in high altitudes are not readily heated.

On the contrary, on the other hand, is due to heat radiated to the body directly from the sun.

A comparative table of the three conditions dealt with is appended, and shows at a glance the main points of difference.

We feel that this article would be incomplete without reference to some other conditions which cause similar symptoms. Many others will come to the mind of the reader, and we readily admit that the diagnosis of any of the conditions known collectively as "Heat Stroke" is no easy matter. The classification of the many other possible diagnoses is the first duty of the medical officer called in to see a patient. A definite history of all previous cases when obtainable, but unfortunately it cannot always be given. To name a few possible medical states which may arise, consider we would mention: Cerebral malaria, shoklike poisoning, spinal poisoning, nervous, diabetic coma, cerebral hemorrhage, cerebral spinal and other infectious lesions.

We intentionally place cerebral malaria first, to stress the necessity, in taking a blood film and searching for parasites. This apparently simple procedure is very apt to be overlooked and results lost in the confusion until the medical legal services it is asked for at the request. It is given prominence to exclude the possibility of cerebral malaria in tropical regions.

The other diseases mentioned do not differ when seen abroad from the signs and symptoms which they exhibit at home. In the case of one of hypopycnic, then common diabetic coma, shoklike and spinal poisoning are called out at once. Cerebral hemorrhage, especially when pointed to in signs is notable in that immediately precedes the elevation of temperature, as held by physicians, the nervous elements. Cerebral spinal lesions and present no difficulty with the heat situation in regular people, or diseases, and low variable temperature. Every sign will also be helpful.

In a permanent or semi-permanent heat the stable-heat of a "heat stroke situation" is a very useful subject to each person.

The building should be so much a situation at the moment that all advantage may be taken of any prevailing breeze. The walls and roof may be constructed of stone (wood and straw) or earth made thick enough to

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For an ideal pond in a garden, the soil should project 10 to 15 cm (4 to 6 in.) high to afford a ledge to the water lily roots and a 5-cm (2-in.) additional margin, the floor may be sunk to a depth of 1 m (3 ft) below ground level, even at the expense of thorough drainage. Windows should be large and impervious to sun radiation to protect ocean nightingales and window frames supporting grass or other succulents, are filled into the window. Squares and can be kept moist by emptying basins of water over them to be heavily poured from a roof tank, and houses are illuminated by incandescence of the water before entering the room.

In the center of the knee is placed a tissue disk drained with a gutter (the gutter apparatus will closely resemble a prosthesis table); alternatively a bandage may be done to immobilize the patient.

On the roof is rigged a tank to large capacity oil drums in an efficient, substantial and from it depends a rope with top fixed with a cone to spray something over the stone slab or basement.

As many lives as possible should be requested and kept playing on the network as requested.

A sentence about counting numbers should be stated, as also should be an even less than statement, too.

Clonal spread such as those noted for the spreading of 'Flat' rank is evident in situations where a tall, open canopy has been removed.

In climates where the atmosphere is very humid, water birds may be common, and *Phlebotomus* species may commonly be of little use owing to their dependence on mosquitoes. Raising the patient with no way then to subject it to

THE ARMY HOSPITAL AT THE NAVAL BASE SINGAPORE

Revised Manuscript to be reviewed

The Asahi Hospital at H M Ward has records of an interesting thirty-six and two words. Patients would have a normal accommodation of thirty-six, although the number of cases in the hospital varies from thirty to thirty-five. It is proposed to build a third ward in the near future so that it will be possible to accommodate the patients. At present there are fifty-two cases under treatment, which considering that the acute period of it is in the range of 4-600 is quite a low and fast. The patients are Chinese, Japanese, Malaysians, Arabs and Chinese with an occasional Malay, Javanese and Singapore. The diseases are Syphilis and Chancres, on that except in a very occasional case where the patient can only talk one of the more commonest dialects of Chinese the latter can always describe his symptoms in his own language. To convey some idea of the type of case treated in this hospital I will analyze the cases at present under treatment. On entering the ward the nurse tells that all the beds are filled with syphilitic men which have been partly picked up by the district board.

At present in the absence of prophylactic measures in the vicinity of the hospital there might be diagnosed with, except for the danger that if amputations did appear they might all become infected from hospital cases before their provision became known.

Malaria.—The first 22 cases were all suffering from malarial fever, there are 26 benign tertians of malarial fever, 1 mixed infection that is benign and malignant and 1 quartan. The latter being comparatively rare here. Fluctuating in the temperature charts at the head of the beds one notices the marked regularity in all the graphs, temperatures 100°, 102°, or 104° on the first day when the case is usually diagnosed, quinine is administered and the temperature falls and runs along as normal during the remainder of the time that the patient is in hospital, occasionally there is a second rise, this is particularly noticeable in the quartan infections where the fall is usually more gradual and here too there is a marked tendency to relapse.

An increase in the number of cases of injury or of disease given an increase in the number of malarial cases. This is explained by the fact that one check to the system such as an injury or any disease causing inability in operating the normal malarial processes will perpetuate an attack of malarial in a patient who may not have had long for coming to a patient—who are not aware that they have been laid low.

One hundred and seven cases of 1918 were admitted to hospital this month, twenty of these showed malarial parasites in their blood.

Malarial cases are kept in hospital for ten days during which time they receive 30 gr. of quinine per dose. Provided they are not relapse cases and have no enlargement of the spleen, they are discharged and receive no further treatment. If there is splenic enlargement or if the case has been under treatment before the administration of 30 gr. of quinine per dose is continued for a further thirty days. Until four months ago all our cases were treated by the latter method, when we adopted the ten days treatment as advised by Major Gordon of the Indian Medical Research Institute, Karachi. At present it is necessary to give an opinion as to the efficacy of the short treatment as compared with that of the longer method previously employed although no appreciable increase in the number of relapse cases has been noted, and only one third of the quinine is being used on each case.

Finger and Shave.—There are eight cases of injury at present in the wards, most of them are minor ones to the legs and feet. When one considers that these laborers do their work with bare feet, it is not surprising that shrapnel, bombs, and passing wounds are a common occurrence. These wounds, especially between shaves which are very close to hand and a highly probable that the tendency to shrapnel is due to the fact that the men are required to work for a few days without shaving to keep out mud and filth and that very often a discussion with a boss of new recruits has to be applied.

The effect of treatment varies greatly in these skin cases. Sometimes a case will do well with good dressing but is not affected by antibiotics or I.C.P., or it may clear up rapidly on mag. sulph. and pyonase. Sometimes there seems to be infection only in the earlier stages when the wound is very dirty and then they must be applied by a compound dressing. Some lesions which have usually some effort about being not healing continuously for weeks disappear and consequently do more harm than good. Many persistent skin heal rapidly after the patient has had one or two injections of B. & D. skin improvement being by no means limited to the cases which show a positive skin test. (We employ the skin test here as it is readily carried out and is sufficient for our requirements.)

While there wounds on the legs and feet, which have been neglected for a few days before treatment has been commenced, become otherwise it is a remarkable fact that the same serious injuries which call for immediate attention heal by first intention. One case of an infected wound on the back of the wrist with involvement of all the extensor tendons was discharged from hospital after two weeks, the tendons had pulled up and the skin wound healed by first intention.

Another case in which the thumb was amputated by machinery at the carpometacarpal joint is healing over without any sign of repair. An interesting point in these cases is that the skin rapidly grows over the surface, so that one does not worry if there is no skin flap available to cover the wound.

A man had his left foot crushed by the wheel of a truck and had the fifth toe with the metatarsal and the fourth and two phalanges of the third small amputated. In addition there was a large mass of skin torn from the side of the foot. With ordinary antiseptic dressings and without any skin grafting the whole is now well healed over within six weeks.

In constant cellulitis-like infections as follows were here, the being only the second case treated during the last twelve months. The first was probably due to our lack of experience with these lesions in as it is down to get a rapid cure, coded with a broken wire and an abscess about three weeks afterwards. In the case now under treatment the man, a Tamil, came with a large hole over his right ankle, the skin was not broken but the parent said that he thought that it was a gnu's ear. An abscess was made and a large quantity of compressed blood and pus was evacuated. On packing and dressing a heavy dressing was thought at first that there was a possibility of the external infection. Next morning a cylindrical piece of hard colored material, about 4 in. long and $\frac{1}{2}$ in. in diameter was found coming from the wound. On exploring the deeper regions of the wound I was able to remove several smaller pieces of a colored gnu's ear. The man made a rapid recovery.

Hydnorhizae.—Hydnorhizae are relatively common in the lesions here. They are usually small grey or trouble and according to the statements of the patients have been present from youth. The man now under treatment

— that a "filling-in" operation is not a very large hydrocele. As the first tapping (about 1 pint) was drawn off, these days later enough fluid had collected to draw out another tapping; when this no fluid has collected and the patient has been discharged as cured.

Results of 17 Tappings.—Owing to the direct exposure of the contents of the coelothorax and the direct total drainage of them, there are comparatively few cases of reinfection treated. There is a form of discharge fairly common which under thin scabs beneath dark and green crusts, boils down up on from heat by night days. For practical purposes it has not been considered essential to have facilities for differentiating the types of bacterial dysentery, but we are of the opinion that some two of the more severe cases are caused by one or other of the *B. dysenteriae*. Further confirmation of the attack is stored out for *B. dysenteriae*.

The few cases of amoebic dysentery which we have treated during the last twelve months have been very mild showing no tendency to recur and we have no means of keeping records on record.

There is reason to doubt whether the finding of *B. dysenteriae* on the absence of more severe symptoms justifies the diagnosis of amoebic dysentery.

In 1928 there was an epidemic of bacillary dysentery when 115 cases were treated with two deaths. It is interesting to note that the outbreak was due to the opening up of new sewer-lines which were being covered temporarily by bucket drains while the main drainage system was being completed. It was a typical fly-borne epidemic among new and unacclimated natives. Dysentery and typhoid brought the outbreak to an end.

The study of *cholelithiasis* of the digestive system strikes one very heavily when practising amongst these natives. During the past twelve months we have not had a single case of gastric or duodenal ulcer, and only one case of appendicitis. It would appear that this could be directly accounted for by the following factors—coarse teeth, a simple diet based irregularly and hard manual labour. The standard of dental efficiency is very high and in the above that of the average European. That this is due chiefly to diet seems to be confirmed by the fact that dental efficiency in Chinese children is of a lower standard—the diet of the latter being largely contaminated by Western ideas in the way of over-refined and cases of various patients include it.

Dysentery.—Infectious mainly rather than intestinal infections, this is undoubtedly due to these healthy enteropathies. During the epidemic of 1928 this month when over 100 cases were treated, only one case showed any signs of nasal mucus.

Peritonitis.—Peritonitis is not a common disease, only two cases having occurred in the last year. The prognosis as compared with that in Europeans is a temporary abscess is laid and there would appear to be a tendency to delayed resolution.

Polymyositis.—Some recent polymyositis patients have diagnosed during the early stages as lead from increasing, appreciable body mass who were admitted to a serious condition and the disease was usually in an early stage. No gross physical signs, the thin patients, but have been seen.

Chilodysplasia.—Symptoms cases of children post are fairly common here, the voluntary mass, to be very low, but although the cool as come into does not last in the late contacts, within contrast it. The force with a course similar to that in a myositis case but a slight degree of getting into place, that getting is probably more apparent than with the few that formed after the disappearance of the muscle is of a much lighter color than the surrounding dark skin.

General Disease.—General disease, contrary to the general opinion, is comparatively rare for not one in five hundred new cases shows signs of active disease. The only explanation that one can put forward at the moment is that these cases do not engage in strenuous work under stress, so it has been stated that over 80 per cent of the population in Singapore are disabled. This statement is probably due more to most of society hard work, concentrated in their employment and saving money than to any high standard of morality.

Myositis, Infectious.—Progressive infection such as occurs here and elsewhere apart from those acute conditions of the legs and feet already mentioned are nothing new. General disease and chronic myositis, however, are fairly common. Some of these cases are due to foreign bodies, as stone crushing, cement mixing and granite dressing must be a source of constant irritation and injury to the myositis. The discovery of many of the eye cases is suggestive of tropical origin.

Beriberi.—During the last year nearly six cases of beriberi have been treated, many of which were either of the mild type or were caught at an early stage, for after a few weeks treatment they recovered and were able to resume duty. The typical case we see reports with pain and weakness in the hands, loss of sensation in the feet, swelling of the legs and ankles, listlessness and discomfort in the upper limbs and occasionally with marked emaciation. If the patient does not respond to treatment he becomes gradually worse, is unable to walk, and all his symptoms become more acute. In the earlier years of the World War there was a greater number of severe cases, some of which were fatal and many were hospitalized. There has been always hovering in the background of the Asiatic mind and it is frequently a matter of debate, dysentery, or pneumonia.

Leishmaniasis.—Known to this hemisphere percentage of 80 are considered mild in the Asiatic and are generally due either to foot ulcers or to chronic ulcers. Treatment of this infection is usually sufficient to allow the patient to carry on with his work. The case under treatment a Tamil laborer is one of the pernicious types and apparently not cured by leishmanin or sodium. He reported not complaining of weakness, headache, giddi-

was vomiting and all portions of the face and legs. He had been working at the Base for two years and had never been on the sick list although he stated that he had lost a slight fever about a month previously and had taken some medicine from a local dispenser. Blood count: red blood cells, 1,100,000 per cubic millimetre; leucocytes 10,000 per cubic millimetre; polymorphs 75 per cent; lymphocytes 18 per cent; mononuclears 3 per cent; eosinophiles 2 per cent. Reticulocytes 4.0 per cent. There was a marked degree of softness, anisocytosis and poikilocytosis; granulocytes and eosinophiles were present. Haemoglobin—75 per cent with a colour index of 1.1. Repeated examinations of the sputa and the blood for parasites were negative. Five days treatment was begun and the patient was given one pound of liver per day, in spite of his religious principles. The effect of the treatment was noted by doing a blood count every second day. During the first five days there was a slight improvement and then there appeared to be a regressive phase lasting for three days when the red blood cells fell to 8,040,000 per c. mm. but the haemoglobin percentage remained constant and the reticulocytes continued to increase. From the seventh day onwards there was a steady and rapid improvement. The reticulocyte count rose to a maximum of 7.5 per cent on the seventh day and then gradually fell to normal on the twenty-first day. Exalted red blood cells were absent on the twentieth day, anisocytosis and poikilocytosis on the eighteenth day. At the end of four weeks the red blood cells had increased to 4,350,000 per c. mm. the leucocytes decreased to 7,000 per c. mm. and the haemoglobin percentage rose to 50. The weight of the patient fell during the first seven days of treatment, but in the next three weeks there was an increase of 15 lb. which brought the weight up to what might be considered normal. Hence during the four weeks treatment, red blood cells increased from 1,100,000 to 1,350,000 per c. mm.; white blood cells decreased from 10,000 to 7,000 per c. mm.; haemoglobin percentage increased from 55 per cent to 70 per cent, and the colour index dropped from 1.1 to 0.91.

NEW EXAMINEE.

In order to maintain a high standard of health and to endeavour to eliminate the complications of infectious diseases and potential carriers of infection, all recruits are subjected to medical examination before being accepted for employment at H. M. Naval Base.

The work that this entails may be appreciated when one makes that in 1930 4,000 new recruits were enlisted and 8,500 were examined for sickness, making a total of 12,500 examinations. Records are kept of all examinations made, these include height, weight, age, haemoglobin percentage, spleen index, heart lungs, and general condition. Three records are also found undesirable when the candidate is placed on the sick list at any time during the enlistment period are the signs of chronic malnutrition, i.e., spleen enlargement and anaemia.

but within a few hours before passing the final laboratory test, who was suffering from a problem, and anticipated that my question was not. I went back to Huxley for bacteriological assistance and he proved to be a quarter— but of diphtheria, not scarlet fever, alas! The strain of *Staphylococcus* bacillus must have been a non-virulent one because we got no mass of diphtheria which for some reason is noticeably absent from the establishment.

In keeping an eye on all forms of infectious diseases I have found a small chart very useful. It consists of a diagrammatic plan of the dormitories with each bed marked in position to show the night bedding of the boys. The day-bedding is shown by vertical columns which represent the various classes in which the boys work. When a case of infectious disease occurs a colored water (red for scarlet fever, blue for diphtheria and so on) is placed on the chart at the position of the patient's day and night bedding. This plan locates a permanent record from term to term, and has been of great use in selecting contacts and detecting foci of infection. On the whole I find day bedding is a more constant source of infection than night bedding, which coincides with the experience of a head schoolmaster who always suspected that the boys who sat on either side of one who developed an infectious disease would be the next victims.

In regarding the Dick test as accurate as H. H. St. Francis, I had the assistance of the Naval Health Officer of the Portsmouth Command Surgeon Commodore T. H. Hayes, D. P. H. and as a result of our deliberations ultimately approval was obtained with the proviso that the parent's consent should be obtained in all cases. This was done by means of a letter as follows:—

"Dear Sir:—We are anxious to test all boys when you H. H. St. Francis find if they are susceptible to scarlet fever. This test—known as the Dick test—is a simple method and consists merely of a slight prick in the arm.

"When a boy is negative to the test it shows that he is not susceptible to scarlet fever but when positive it indicates that he is likely to get the disease if he should come in contact with infection. In this case it is possible to render him safe by giving a course of anti-scarlet fever injections. These injections do not interfere with the boy's work.

"I shall be obliged if you will let me know if you consent to these safeguarding procedures i.e. the Dick test and subsequent injections, if found necessary in the case of your son.

Consent to these tests was always given by the parents, sometimes rather dubiously at first. If parents were in a hurry—say—good—sometimes freely, as in the case of one father who scribbled across our letter: "Yes, give our George a test."

Once the decision to start the Dick test was made it might have appeared desirable to do it on all the boys as the establishment at once knew as they were about 500 of them. I decided that such a mass procedure

would be easily interpreted by the jury as being a qualitative, but not a quantitative, observation. In future experiments, especially in the double, to test all the livers in three groups (each group being divided into twenty five every three weeks throughout the year). In this scheme I estimated that by the end of 1957 all the livers that would, in the establishment would have been tested.

The Duck test is capable of producing good amounts of the erythrocytes, especially into the livers of a deep variety of marbled liver tests. It is important that this operation should be, into the skin, not under it, and when the procedure is properly done the immediate result resembles a second wound here in that a small wheel is raised in the skin. The result of the test is revealed twenty four hours later. When the result is negative nothing is seen except the puncture mark with possibly a very small area of redness surrounding it due to the stimulus of a little blood, as to the erythrocytes caused by a foreign product. When the reaction is positive an area of erythrocytes is seen to have been produced around the site. This erythrocyte response differs from the response referred to in the negative results, it is more of a blush than a redness and may extend to the area of half a crown. A positive reaction to the Duck test constitutes a non-specific phenomenon and may be taken to indicate that the patient has no antibody to the control liver tissue comprising in his blood. The addition of the Duck solution supply a "control" which has been demonstrated by test, and they suggest that it should be injected into the other arm. If a reaction occurs with the control solution it is due to the protein content, and not to the specific toxin and constitutes a protein reaction. To constitute a true reaction the erythrocytes from the toxic (Duck) solution must be more pronounced than that resulting from the control but when some experience has been gained in reading results the control solution can be dispensed with since it is of much less importance with the Duck than with the rabbit test for leptospirosis.

The Duck test is strictly qualitative and does not cause any general reaction. I found that about fifteen two to ten livers in every batch of twenty two were positive or non-reactive to marbled liver and livers who had had similar livers were always quite negative to the test. The positives represent the potential to what liver tests and were placed on the "marbled liver prophylaxis list" where they undergo a course of injections intended to produce active immunity in them. The marbled liver prophylaxis is standardized in this dose, and I went with 500 i.u. and went up to 10,000 i.u. in less or less weekly injections. These injections are given hypodermically and are sometimes followed by a local and general reaction similar to those with which we are all familiar in the case of T.A.B.U. injections, but I have had very little trouble in this respect.

I may say here that opinion is somewhat divided on the subject of marbled liver prophylaxis as to whether it is better to give at twice or three monthly. In the present method one or two injections of up

cases, one having children who have been exposed, with infection and who have been allowed to live, I pointed to the duck test. This is the method used so far to indicate tempery, but the outcome is doubtful in all very short duration—and sufficient in fact, to carry the patient over the incubation period on matter of ten days, to us. The same method on the other hand, produces an extension of week longer duration, and by re-living keeps who have had a prophylaxis, come on morning sickness. I had to go eleven months before I came across a mild extension in "positive" in selecting which method I would do in the 50 I want. I found myself much in favor of the active method on account of its longer run out. The passive method extended ten weeks of looking the table down after the fever had gone. In this one has to wait until you get a case of "what's to be before you do anything." Therefore, I adopted the same method which I have described.

The cost of my new procedure is always a matter of importance, as a matter of interest to explain what the market does measure means in L's D. When bought at contract prices and in quantities, as required for a given number of patients, it costs me pretty, per day to do the duck test, but on the cost of the 50 I say of those must be added three pence per day for the to make postage for the patients' content but in Lums, this cost may be saved by not doing the duck test on the 100000. I am which all patients sign before their legs join the fever. The prophylaxis, comes next about ten shillings and a penny per day, what such is very cheap when compared with the cost of maintaining a child kept present in hospital for two months.

It is only yet to give southern figures, limited as when has to write, in the 50 I want to the continued market have prophylaxis had clearly, there has been a rapid fall in the cost of the disease, despite the fact that the whole community is not yet commenced. (What difference of cost have been done at the time of writing.) It is perhaps as much to fight that matter, for, I will be entirely judged from that is not, the evidence—normal cases will appear owing to extension of immunity, as a normal outcome. But what I do anticipate is that as all the cases are referred to a class of about nine infectious disease, made to prove more in evidence. In support of this experience, I will point out the price is shown in the table above to which I have referred. In the 100000, I say—that is before the anti-viral measure, was introduced, were shown cases of market fever, and of them eleven cases were. All be definitely traced to infection from contact with one day the treatment, the high infectivity of the disease through the new process. In the latter term of 1000 there were eleven specific and undifferentiated cases of market fever but in nature was there any infection by contact with them. In both of the cases mentioned in the cost procedure were adapted to avoid spread of the disease by isolation of contacts and so on, and the only

Comparing the three periods with the period 1929-34, the situation may be summarized as follows:—

The total number of cases has been reduced by more than half, the rates per thousand show a decline of 50 per cent, and the percentage of cases lost to the service has diminished to a figure approximately 1 per cent.

Medical officers on the V.A. recognize that there is no single method of prophylaxis which will solve the problem of reducing the incidence of venereal diseases.

The effects of venereal diseases—the disastrous nature of which is perhaps realized only by a small section of medical practitioners and one of a nation—may be summarized back to the individual and to the general staff being. It seems logical therefore to explore every avenue which may lead to the goal we have in view. It is generally accepted that education is the crux of progress and this is particularly true with regard to venereal prophylaxis. Ignorance of sex is probably the greatest cause of venereal misadventure and its attendant evils. Instruction in these matters is still regarded as a problem of no little difficulty. How can many questions be answered? Is it essentially a problem between parents and children? Should parents say to say that in the position that prevailed for the long time, at what age should instruction be given? Should instruction be given individually or in classes and should classes be limited to parents of the same sex? What exactly should be the nature of the teaching and in what manner should it be conveyed? These and many other points have engaged the useful attention of social workers and their interested as well as responsible for the youth of the nation but so far we have no consensus of thought and no consensus acceptable to all. This study is a question worthy of further close attention.

In the heavy instruction in sex hygiene is given to all young citizens in the boys' training establishments, the religious, domestic and all are met and not others co-operate in this important work. The subject of venereal disease is usually not touched upon at this stage but later, before the boys are drafted to sea, the nature and dangers of these diseases are usually explained.

A vigorous campaign against venereal disease is continuously in operation and effort. This campaign has its direct and indirect effect. On the former may be singled lectures and distribution on the latter early diagnosis and treatment, and physical and recreational training.

Lectures are delivered in the general hospitals and other establishments, a regular material, all stages under training period. In these institutions is given to the personnel throughout the instruction. These lectures embrace the following points:—

(a) The nature of the venereal and the advantages of continence.

(b) The nature of venereal diseases, their disastrous effects socially, economically and to the individual, especially women and children.

19. It is of less interest and less general interest to consider chemical means as a prophylactic measure against venereal disease.

(a) *Preventing disease and lesions.* The value of prophylaxis and treatment of disease and lesions of the venereal system is obvious. It is not necessary to discuss the question of prophylaxis and treatment of disease and lesions of the venereal system in this connection.

(b) *The effects of chemotherapy.*

(1) *Chemical means are not prophylactic.* When the value of medicine, the treatment of venereal disease and of late chemotherapy in the treatment of disease and lesions of the venereal system is considered.

(2) *Chemical means are not prophylactic.* The present importance of making immediate treatment for the venereal system is apparent.

It is important to say very much about venereal disease and delayed chemotherapy. It is believed that under ideal conditions both these methods have proved a great deal in reducing the number of infected persons. As far as we know, no knowledge of chemotherapy has superseded chemical means and the value of chemotherapy in venereal disease is not yet known. However, it is not known whether chemotherapy is really, then, as good as the present venereal disease is really very serious, many patients have been in venereal disease.

The treatment of venereal disease is not to be considered that there are still large numbers of venereal prophylaxis, whose treatment is based upon the fact that there are good reasons of its efficacy. In considering the treatment of venereal disease, it must never be forgotten that chemotherapy is not less than all the relevant circumstances are not to be forgotten. Thus, often the treatment is not considered in cases quoted as "venereal disease of venereal prophylaxis" whether the danger of infection is not great at all. The fact that an individual used a certain chemical and did not become infected does not prove that the chemical is an effective prophylaxis of venereal disease, unless it is also known beyond any doubt that the person with whom he associated actually had venereal disease in a communicable form. I mention this because one is apt to be misled as to the value of statistics based upon premises upon the treatment of venereal disease.

Secondly, finally the prevention of venereal disease by chemical treatment is not chemically possible, but in practice carefully investigated means are liable to prove disappointing.

The principles of medicine, early diagnosis and treatment are for all venereal diseases. In the early stages, these principles are rapidly carried out in the laboratory and clinical laboratory and about. Early diagnosis and treatment are the essential methods of treatment and to lower the number of infected persons. Equally important in this respect is an efficient method of early diagnosis that no more is discharged from treatment before the system of laboratory has been thoroughly worked.

The value of physical therapy and of physical therapy does not need

any other segment. Nowhere, left or right, is the flying squirrel ever as much guided by terrain and habitat, usually, up (usually) or east (if you land near a home nest on a certain station).

[illegible]

5016 GREGG, LEE, AND SHIMIZU

The Journal of Consumer Psychology, 15(1), 1-10. doi:10.1002/cj.10001
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described in the report as a "series of questions" which, in various periods of inquiry, related to the "theoretical and practical problems of the law" in the United States. The report was published in 1911, and was the first of a series of reports on the "theoretical and practical problems of the law" in the United States. The report was published in 1911, and was the first of a series of reports on the "theoretical and practical problems of the law" in the United States. The report was published in 1911, and was the first of a series of reports on the "theoretical and practical problems of the law" in the United States.

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Clinical Notes

A CASE OF DYSPEPSIA IN THE ADULT.

By HENRY GORDON M. FORD, M.D., D.P.H.

M.

From the Department of Medicine, University of Michigan.

This case is of the variety of peptic ulcer, which is usually associated with the condition of the stomach known as the "gastric ulcer" or "gastric ulcer."

The patient was a man, aged 45, who had been suffering from dyspepsia for several years. He had been treated with various remedies, but without success.

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the patient was taken to the hospital and the following morning he was found dead. The following morning he was found dead. The following morning he was found dead.

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expensive) although some kind of compensation for food given was made and balanced against the food consumed (glucose, etc.).

By 5 a.m. on May 19 patient had become comatose and flaccid. On May 20 he died peacefully after a coma of 24 hours.

Post-mortem changes.—The gross anatomy showed the following grossly obvious changes: the patient's body began to feel warm on May 19, and by 10:30 P.M. when nursing began, a general hyperaemia was noted, which was particularly apparent on the head. In spite of this no temperature rise was observed until after death, appearing in the head at 12:30 P.M. on May 20. There was a general gross redness of the skin, but the face was not flushed. The lungs, which all the organs of the body had to be moved through, were of a red, rose of shingle color, but the lungs were a very little larger than normal. During sleep the pulse rate usually fell to 70 per cent of normal, a range of 70 to 80 beats the minute. (The appearance of patient's general condition, i.e., pale around the face.) There was no cyanosis, except the chest, which had the left shoulder together with a dusky, cyanotic, color of the left arm.

When seen next morning, May 21, he showed more rigidity; the procedure was about the same. The head was still red, a dark green or brown over the vertex of the skull and with red in the neck up near the ears. The eyes were red and the left side of the chest. The skin in general was more of a light red or pink, which was slightly relieved by the pallor of the legs. From a very early time (from 10 a.m. on May 20) the temperature rose to 100° F., and by 10:30 a.m. on May 21 had reached 102° F. and was not for subsequent 24 hours.

On May 22 the same result. On May 23 and on all the subsequent days up to 1933 the temperature rose to 101° F. and the patient was, for the blood pressure was found to be 110/70 mm. Hg. The color was good and the breathing easy.

The following day, May 24, he was obviously much better. He still had a slight constant pain in the parietal area which probably had been during the two twenty-four hours. The morning temperature was 100° F., the evening temperature was 100° F. The pulse rate was 70 to 80 all day. It was now realized that the temperature was probably due to the bacterial attack which had been responsible for the onset of his original attack and which had taken together with a simple post-operative fever were given him from a day with marked fever to the general condition.

On May 25 he was allowed to get up for the first time; the blood pressure was about the same as before, 110/70 mm. Hg.

The following day the nursing records were good, stable as they found a response and a slight increase in the amount of food as the quantity of the next day. Another twenty-four hours was elapsed.

From June 1 onwards the patient remained free from symptoms. Through the physical signs were watched, and by June 15 treatment at the Central Lard Hospital at Phoenix on June 4 for further treatment.

Other features.—The patient only 12 hours of coma on the first day, 20 on the second and 17 on the third. The first opening was noted May 20th and contained a small amount of mucus with a deposit of mucous pus and epithelial cells in the mucus, and was watery and granular mass. On June 5 there was still a trace of mucus present with a deposit of mucous pus, epithelial cells and mucus cells or occasional red blood cells and some granular cells.

The urinary tract on the second day was 2.5 per cent, and the blood was 17.5 per cent. A trace of mucus was found in the urine at the period was a trace of mucus in the urine.

The Wassermann reaction of his blood on May 26 was negative. It was also found that a complete serological examination of the specimen on May 26 was found to be negative. In the cerebrospinal fluid an electroencephalograph in 1934 supplied.

Abstract

THE PHYSICAL ASPECT OF PARKINSONISM

By CHARLES C. STEPHENSON, M.D., Ph.D., M.A., F.R.S.

Lecturer in Medicine, St. John's Hospital, St. James's, Dublin

THE physical aspects of the disease among those not particularly concerned with the question "What Parkinsonism?" have hitherto been neglected. In view of the fact that the disease is so described in English, the physical aspects of the English physician and physiologist have been neglected. The present paper is a review of the physical aspects of the disease. It is published in 1911 in the *Journal of the Royal Society of Medicine*, which was based on the observations of the physical aspects of the disease in the English physician and physiologist. The disease is now known to be a degenerative disease, probably arising in the degeneration of the brain. More than any other disease, the physical aspects of the disease are of importance in the diagnosis and treatment of the disease. The physical aspects of the disease are of importance in the diagnosis and treatment of the disease. The physical aspects of the disease are of importance in the diagnosis and treatment of the disease.

Parkinsonism was originally described by James Parkinson in 1817. It was then known as "Shaking Palsy" and was characterized by tremor, rigidity, and bradykinesia. The physical aspects of the disease were described by James Parkinson in 1817. It was then known as "Shaking Palsy" and was characterized by tremor, rigidity, and bradykinesia. The physical aspects of the disease were described by James Parkinson in 1817. It was then known as "Shaking Palsy" and was characterized by tremor, rigidity, and bradykinesia. The physical aspects of the disease were described by James Parkinson in 1817. It was then known as "Shaking Palsy" and was characterized by tremor, rigidity, and bradykinesia.

The physical aspects of the disease are characterized by three main features: tremor, rigidity, and bradykinesia. These features are characteristic of the disease and are of importance in the diagnosis and treatment of the disease.

1. Tremor: This is the most characteristic feature of the disease. It is a rhythmic, involuntary movement of the body or its parts. It is most pronounced in the hands and fingers, but it may also affect the head, face, and legs. The tremor is usually most pronounced when the patient is at rest or when he is performing a fine motor task. It is usually most pronounced in the hands and fingers, but it may also affect the head, face, and legs. The tremor is usually most pronounced when the patient is at rest or when he is performing a fine motor task.

2. Rigidity: This is a stiffness of the muscles, which is usually most pronounced in the arms and legs. It is usually most pronounced when the patient is at rest or when he is performing a fine motor task. It is usually most pronounced in the arms and legs, but it may also affect the head, face, and legs. The rigidity is usually most pronounced when the patient is at rest or when he is performing a fine motor task.

3. Bradykinesia: This is a slowness of movement, which is usually most pronounced in the arms and legs. It is usually most pronounced when the patient is at rest or when he is performing a fine motor task. It is usually most pronounced in the arms and legs, but it may also affect the head, face, and legs. The bradykinesia is usually most pronounced when the patient is at rest or when he is performing a fine motor task. It is usually most pronounced in the arms and legs, but it may also affect the head, face, and legs. The bradykinesia is usually most pronounced when the patient is at rest or when he is performing a fine motor task.

The physical aspects of the disease are of importance in the diagnosis and treatment of the disease. The physical aspects of the disease are of importance in the diagnosis and treatment of the disease. The physical aspects of the disease are of importance in the diagnosis and treatment of the disease.

[illegible][illegible]

Il faut donc être très attentif, lorsqu'on a l'intention de faire un voyage, de ne pas se laisser influencer par les publicités des compagnies aériennes, mais de consulter les journaux de voyage et les guides de voyage.

[illegible]

Parsons is a 501(c)(3) nonprofit organization that provided identity information to the FBI in 2004. The FBI is using the data to identify and locate the subject of the investigation.

Therefore, the authors of this study suggest that the use of a single type of visual aid (e.g., a single type of map or landscape) may not be sufficient to enhance the effectiveness of the information presented on such a navigation interface.

1. **Find the value of x in the following:**
 (a) $2x + 3 = 7$
 (b) $5x - 2 = 8$
 (c) $3x + 1 = 4$
 (d) $7x - 4 = 13$
 (e) $4x + 5 = 9$
 (f) $6x - 1 = 11$
 (g) $2x + 7 = 15$
 (h) $8x - 3 = 19$
 (i) $5x + 2 = 12$
 (j) $9x - 5 = 23$
 (k) $3x + 4 = 10$
 (l) $7x - 6 = 18$
 (m) $4x + 1 = 6$
 (n) $6x - 4 = 14$
 (o) $2x + 9 = 17$
 (p) $8x - 1 = 25$
 (q) $5x + 3 = 14$
 (r) $9x - 7 = 20$
 (s) $3x + 5 = 11$
 (t) $7x - 2 = 16$
 (u) $4x + 6 = 10$
 (v) $6x - 3 = 15$
 (w) $2x + 1 = 5$
 (x) $8x - 4 = 20$
 (y) $5x + 7 = 18$
 (z) $9x - 2 = 24$
 (aa) $3x + 8 = 13$
 (ab) $7x - 5 = 19$
 (ac) $4x + 2 = 10$
 (ad) $6x - 1 = 13$
 (ae) $2x + 4 = 8$
 (af) $8x - 3 = 21$
 (ag) $5x + 1 = 11$
 (ah) $9x - 6 = 27$
 (ai) $3x + 2 = 7$
 (aj) $7x - 4 = 18$
 (ak) $4x + 3 = 9$
 (al) $6x - 2 = 14$
 (am) $2x + 5 = 7$
 (an) $8x - 1 = 23$
 (ao) $5x + 4 = 12$
 (ap) $9x - 3 = 26$
 (aq) $3x + 6 = 10$
 (ar) $7x - 7 = 14$
 (as) $4x + 8 = 12$
 (at) $6x - 5 = 17$
 (au) $2x + 3 = 5$
 (av) $8x - 2 = 22$
 (aw) $5x + 5 = 15$
 (ax) $9x - 4 = 25$
 (ay) $3x + 1 = 4$
 (az) $7x - 8 = 20$
 (ba) $4x + 7 = 11$
 (bb) $6x - 6 = 12$
 (bc) $2x + 2 = 6$
 (bd) $8x - 5 = 21$
 (be) $5x + 9 = 19$
 (bf) $9x - 1 = 28$
 (bg) $3x + 3 = 6$
 (bh) $7x - 9 = 22$
 (bi) $4x + 1 = 5$
 (bj) $6x - 7 = 13$
 (bk) $2x + 6 = 8$
 (bl) $8x - 6 = 24$
 (bm) $5x + 2 = 10$
 (bn) $9x - 5 = 29$
 (bo) $3x + 4 = 7$
 (bp) $7x - 3 = 17$
 (bq) $4x + 5 = 9$
 (br) $6x - 4 = 16$
 (bs) $2x + 7 = 9$
 (bt) $8x - 7 = 23$
 (bu) $5x + 3 = 13$
 (bv) $9x - 2 = 30$
 (bw) $3x + 5 = 8$
 (bx) $7x - 4 = 19$
 (by) $4x + 2 = 6$
 (bz) $6x - 8 = 14$
 (ca) $2x + 1 = 3$
 (cb) $8x - 3 = 25$
 (cc) $5x + 6 = 16$
 (cd) $9x - 4 = 31$
 (ce) $3x + 2 = 5$
 (cf) $7x - 5 = 21$
 (cg) $4x + 3 = 7$
 (ch) $6x - 1 = 15$
 (ci) $2x + 4 = 6$
 (cj) $8x - 2 = 26$
 (ck) $5x + 7 = 17$
 (cl) $9x - 6 = 32$
 (cm) $3x + 1 = 4$
 (cn) $7x - 7 = 22$
 (co) $4x + 4 = 8$
 (cp) $6x - 3 = 18$
 (cq) $2x + 5 = 7$
 (cr) $8x - 4 = 27$
 (cs) $5x + 1 = 11$
 (ct) $9x - 3 = 33$
 (cu) $3x + 6 = 9$
 (cv) $7x - 6 = 23$
 (cw) $4x + 1 = 5$
 (cx) $6x - 5 = 19$
 (cy) $2x + 3 = 5$
 (cz) $8x - 7 = 28$
 (da) $5x + 4 = 14$
 (db) $9x - 1 = 34$
 (dc) $3x + 7 = 10$
 (dd) $7x - 8 = 24$
 (de) $4x + 6 = 12$
 (df) $6x - 9 = 15$
 (dg) $2x + 8 = 10$
 (dh) $8x - 5 = 29$
 (di) $5x + 3 = 15$
 (dj) $9x - 7 = 35$
 (dk) $3x + 4 = 7$
 (dl) $7x - 9 = 25$
 (dm) $4x + 2 = 6$
 (dn) $6x - 4 = 20$
 (do) $2x + 6 = 8$
 (dp) $8x - 6 = 30$
 (dq) $5x + 5 = 17$
 (dr) $9x - 5 = 36$
 (ds) $3x + 2 = 5$
 (dt) $7x - 4 = 26$
 (du) $4x + 3 = 7$
 (dv) $6x - 1 = 21$
 (dw) $2x + 4 = 6$
 (dx) $8x - 3 = 31$
 (dy) $5x + 7 = 19$
 (dz) $9x - 6 = 37$
 (ea) $3x + 5 = 8$
 (eb) $7x - 7 = 27$
 (ec) $4x + 4 = 9$
 (ed) $6x - 3 = 22$
 (ee) $2x + 7 = 10$
 (ef) $8x - 5 = 32$
 (eg) $5x + 1 = 13$
 (eh) $9x - 8 = 38$
 (ei) $3x + 6 = 11$
 (ej) $7x - 9 = 28$
 (ek) $4x + 2 = 7$
 (el) $6x - 5 = 23$
 (em) $2x + 8 = 11$
 (en) $8x - 7 = 33$
 (eo) $5x + 4 = 16$
 (ep) $9x - 9 = 39$
 (eq) $3x + 3 = 6$
 (er) $7x - 5 = 29$
 (es) $4x + 5 = 9$
 (et) $6x - 6 = 24$
 (eu) $2x + 9 = 12$
 (ev) $8x - 8 = 34$
 (ew) $5x + 2 = 14$
 (ex) $9x - 10 = 40$
 (ey) $3x + 7 = 12$
 (ez) $7x - 6 = 30$
 (fa) $4x + 7 = 13$
 (fb) $6x - 7 = 25$
 (fc) $2x + 9 = 14$
 (fd) $8x - 9 = 35$
 (fe) $5x + 6 = 18$
 (ff) $9x - 11 = 41$
 (fg) $3x + 8 = 13$
 (fh) $7x - 10 = 31$
 (fi) $4x + 3 = 8$
 (fj) $6x - 7 = 26$
 (fk) $2x + 10 = 15$
 (fl) $8x - 10 = 36$
 (fm) $5x + 5 = 19$
 (fn) $9x - 12 = 42$
 (fo) $3x + 9 = 16$
 (fp) $7x - 11 = 32$
 (fq) $4x + 6 = 11$
 (fr) $6x - 8 = 27$
 (fs) $2x + 11 = 17$
 (ft) $8x - 11 = 37$
 (fu) $5x + 3 = 20$
 (fv) $9x - 13 = 43$
 (fw) $3x + 10 = 18$
 (fx) $7x - 12 = 33$
 (fy) $4x + 8 = 14$
 (fz) $6x - 9 = 28$
 (ga) $2x + 11 = 19$
 (gb) $8x - 12 = 38$
 (gc) $5x + 7 = 21$
 (gd) $9x - 14 = 44$

Figures with 1 indicate that the variable generated by the model is predicted by measures and values from the 100 colleagues.

1999

Keywords: Time, memory, aging, cognition. **PsycINFO** 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

[illegible]

In the Federal Republic of Germany, we will go much further than the Marxists, who think that great and revolutionary changes can be brought about by the force of ideas and words alone.

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The second group comprised those from the British and French colonies and dependencies of the Americas. This group included the United States, Canada, Mexico and the Caribbean. The United States and Canada were the largest and most influential of the group. The United States had the largest population and the most powerful economy. Canada was also a major power. Mexico and the Caribbean were smaller but still important. The British and French colonies and dependencies were also important. The British colonies included the West Indies, Central America, and the Caribbean. The French colonies included the West Indies, Central America, and the Caribbean. The British and French colonies and dependencies were also important.

The last section is full of vitamins and minerals, the only form of fiber, antibiotics and herbs. It is going into Indian Unidist Japan and in a way the record of the department is very close, when in fact the Japanese had the most complete library of its samples and many other samples of the same methods he had taught in his primary, his success is just as the opportunity to find many more success, in the future.

[illegible]

The water fireproofed tank which will be released by the emergency float in about 1 hour, is due and is a challenge to the many miles of low levees and to the work.

Medicine & Medicine in the Army. Pp. 15. In the gift of the Society of the R.C.P.D. Library.
Physician and Surgeon in Medicine at St. George's Hospital. (Review of Physiology.)
by the Queen's Hospital for Children. 1 volume on Medicine in the Royal
College of Physicians and 1 volume on Surgery. R.C.P.D. Library.
Physician, Lecturer on Medicine and Surgeon at the National School of Medicine
Hospital. Physician in the Hospital for Physic and Surgery, St. John's, York
and the Royal College of Physicians Hospital. Physician in Medicine on the
Duty of the General Hospital at the University of London. With an Intro-
duction by the Honorable Member, Sir R.C.P.D. Library.
1911. London. General and General. Ltd. Price 2s. 6d. Pp. 140. Price
the rest of the volume.

[illegible]

1. *Journal of the American Statistical Association*, 1991, 86, 1023-1032. This paper presents a study of the use of the normal distribution in the analysis of count data. The authors discuss the use of the normal distribution in the analysis of count data and the use of the normal distribution in the analysis of count data.

Figure 1. Effect of the concentration of the polymer solution on the surface energy of the polymer film. The surface energy of the polymer film was measured by the contact angle method. The surface energy of the polymer film was measured by the contact angle method. The surface energy of the polymer film was measured by the contact angle method.

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5. *glory*, in the sense of "praise" or "honor," is a noun, and *glorify* is a verb.

The three relations may be obtained by substituting $\frac{1}{2}(\pi - \theta)$ for θ in (10), (11) and (12), respectively.

To achieve 100% compliance, the following steps should be taken:

The left side of the diagram shows that the number of α particles emitted by a nucleus does not depend on the mass of the nucleus, but only on the mass number. This is a change of parity for the mass number, and hence the conservation of the spin. It is apparent that the number of α particles emitted by a nucleus is equal to the mass number of the nucleus.

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[illegible]

The new, very light 1100 cc. engine has a power output of 40000 watts (55 hp) and is a 4-cylinder, 4-valve unit. The motor is a 1000-watt, 110-volt, 60-hz. unit. The car is a 2-door, 2-seater, 2-seater, and may be used as a 2-seater or 4-seater. The car is a 2-door, 2-seater, 2-seater, and may be used as a 2-seater or 4-seater. The car is a 2-door, 2-seater, 2-seater, and may be used as a 2-seater or 4-seater.

The two-part series is available in paperback for \$14.95. It is the only textbook on the market that covers the entire range of the subject.

[illegible]

The thirtieth edition of *Journal of American Literature* has been newly expanded and includes new, revised and deleted articles, references, reviews, notices, and

1. [illegible]	2. [illegible]	3. [illegible]	4. [illegible]	5. [illegible]	6. [illegible]	7. [illegible]	8. [illegible]	9. [illegible]	10. [illegible]
11. [illegible]	12. [illegible]	13. [illegible]	14. [illegible]	15. [illegible]	16. [illegible]	17. [illegible]	18. [illegible]	19. [illegible]	20. [illegible]
21. [illegible]	22. [illegible]	23. [illegible]	24. [illegible]	25. [illegible]	26. [illegible]	27. [illegible]	28. [illegible]	29. [illegible]	30. [illegible]
31. [illegible]	32. [illegible]	33. [illegible]	34. [illegible]	35. [illegible]	36. [illegible]	37. [illegible]	38. [illegible]	39. [illegible]	40. [illegible]
41. [illegible]	42. [illegible]	43. [illegible]	44. [illegible]	45. [illegible]	46. [illegible]	47. [illegible]	48. [illegible]	49. [illegible]	50. [illegible]
51. [illegible]	52. [illegible]	53. [illegible]	54. [illegible]	55. [illegible]	56. [illegible]	57. [illegible]	58. [illegible]	59. [illegible]	60. [illegible]
61. [illegible]	62. [illegible]	63. [illegible]	64. [illegible]	65. [illegible]	66. [illegible]	67. [illegible]	68. [illegible]	69. [illegible]	70. [illegible]
71. [illegible]	72. [illegible]	73. [illegible]	74. [illegible]	75. [illegible]	76. [illegible]	77. [illegible]	78. [illegible]	79. [illegible]	80. [illegible]
81. [illegible]	82. [illegible]	83. [illegible]	84. [illegible]	85. [illegible]	86. [illegible]	87. [illegible]	88. [illegible]	89. [illegible]	90. [illegible]
91. [illegible]	92. [illegible]	93. [illegible]	94. [illegible]	95. [illegible]	96. [illegible]	97. [illegible]	98. [illegible]	99. [illegible]	100. [illegible]

HONOURS

The following honours have been conferred on members of the Service during the year 1914-15:

1. [illegible] (1st Class)

2. [illegible] (2nd Class)

3. [illegible] (3rd Class)

4. [illegible] (4th Class)

5. [illegible] (5th Class)

6. [illegible] (6th Class)

7. [illegible] (7th Class)

8. [illegible] (8th Class)

9. [illegible] (9th Class)

10. [illegible] (10th Class)

TRANSFERS TO PERMANENT LIST

The following have been transferred to the Permanent List:

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

9. [illegible]

10. [illegible]

PROMOTIONS

The following have been promoted during the year 1914-15:

1. [illegible] (1st Class)

2. [illegible] (2nd Class)

3. [illegible] (3rd Class)

4. [illegible] (4th Class)

5. [illegible] (5th Class)

6. [illegible] (6th Class)

7. [illegible] (7th Class)

8. [illegible] (8th Class)

9. [illegible] (9th Class)

10. [illegible] (10th Class)

11. [illegible] (11th Class)

12. [illegible] (12th Class)

13. [illegible] (13th Class)

14. [illegible] (14th Class)

15. [illegible] (15th Class)

16. [illegible] (16th Class)

17. [illegible] (17th Class)

18. [illegible] (18th Class)

19. [illegible] (19th Class)

20. [illegible] (20th Class)

RETIREMENTS

The following have retired during the year 1914-15:

1. [illegible] (1st Class)

2. [illegible] (2nd Class)

3. [illegible] (3rd Class)

4. [illegible] (4th Class)

5. [illegible] (5th Class)

6. [illegible] (6th Class)

7. [illegible] (7th Class)

8. [illegible] (8th Class)

9. [illegible] (9th Class)

10. [illegible] (10th Class)

11. [illegible] (11th Class)

12. [illegible] (12th Class)

13. [illegible] (13th Class)

14. [illegible] (14th Class)

15. [illegible] (15th Class)

16. [illegible] (16th Class)

17. [illegible] (17th Class)

18. [illegible] (18th Class)

19. [illegible] (19th Class)

20. [illegible] (20th Class)

11/11/2011 11:11:11 AM

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1000 1000

1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed. 2. The second step is to set goals. These should be specific, measurable, achievable, relevant, and time-bound. 3. The third step is to develop a plan. This involves identifying the resources needed and the steps to be taken. 4. The fourth step is to implement the plan. This involves putting the plan into action and monitoring progress. 5. The fifth step is to evaluate the results. This involves assessing the impact of the changes and making adjustments as needed.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible][illegible][illegible]

1. *Staphylococcus aureus* (10⁷ CFU/ml) was grown in 10 ml of Tryptone Yeast Broth (Difco) at 37°C for 24 h. The culture was centrifuged at 10,000g for 10 min and the supernatant was removed. The cells were washed with 10 ml of distilled water and centrifuged again. The cells were then resuspended in 10 ml of distilled water and the suspension was adjusted to a concentration of 10⁷ CFU/ml.

Age Group	Believe it is a problem (%)	Do not believe it is a problem (%)
18-29	85	15
30-49	85	15
50-69	85	15
70+	85	15

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TABLE 1. *Salmonella* serotypes isolated from the 1990-1991 season

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

[illegible]

Age Group	Male (%)	Female (%)
18-24	10	10
25-34	15	15
35-44	20	20
45-54	25	25
55-64	30	30
65-74	35	35
75-84	40	40
85+	45	45

Book review of *Journal of Management Education* 33(1) November 2009, pp. 1-2

THE WILLIAMS RESEARCH INSTITUTION

University of California, Berkeley, California, U.S.A.

The President of the Royal Society of Medicine, Sir Harold Ross, has been elected Honorary President of the Williams Research Institution. The members of the Institution are holding an annual conference in the Williams Research Institute at the University of California, Berkeley, California.

There will be a luncheon and reception at the Williams Research Institute at the University of California, Berkeley, California, on the 15th of June 1955.

The Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute. The Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute. The Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute.

DISPOSITION, &c.

WILLIAMS RESEARCH INSTITUTION, PROPOSAL, &c.

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TWO PHASES OF THE SYSTEM

More specifically, the Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute. The Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute.

Two phases of the Williams Research Institute are: (1) the Williams Research Institute, and (2) the Williams Research Institute.

With this end in view, the Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute. The Williams Research Institute is a research institution which is devoted to the study of the Williams Research Institute.

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NOTES.

The Editors desire to beg Officers to send all important papers in connection with their personal discharges, the "General Orders" or "Orders" as directed in the General Order and "Orders" and "Instructions" and "Appointments" to be sent to the Editor.

All articles or communications published in the "General Orders" and "Instructions" will become the property of the Editor and will be published without copyright notice, unless the author desires when sending, the Editor, that he desires to reserve the copyright in his work.

Names of Officers, Members, and Donors are inserted free of charge in the "General Orders".

All communications should reach the Editor on or before the 1st of the month preceding the date of issue. Unless clearly evident they should be typed in order to avoid mistakes and they should be addressed to the Editor, General, or the General Order, General, General, Royal Naval Hospital, Haver, Haver.

The "General Orders" and "Instructions" are published quarterly four months except one volume.

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ADDITIONAL INFORMATION.

PRINTED AND PUBLISHED BY THE GENERAL ORDER, GENERAL, GENERAL, ROYAL NAVAL HOSPITAL, HAVRE, HAVRE.

Journal of the Royal Naval Medical Service.

Original Articles.

SOME LINKS OF THE DISTRIBUTION OF INFECTIOUS DISEASES IN THE ROYAL NAVY.

By *Isaacson Gurney, M.D., F.R.C.P., D.P.H., D.S., M.B., B.S.,*
D.P.H. (LOND.).

PART II.

THE HISTORY OF INFECTIVE DISEASES IN THE ROYAL NAVY.

In recent years in various parts of the world epidemics have been becoming more common. Therefore a re-examination of the naval records of years in the Mediterranean should have a special interest at the present time. An old naval health report, written in 1877 contains the following entry on Malta—

"Malta is situated in a central position, its harbours and the great base of its harbours in the principal naval station. During most months of the year the temperature is moderate, the wind is from the south, and the sea is calm, which make the conditions of health on the island especially pleasant. There is a highly beneficial effect on the health of sailors and the crew of the naval base, owing to the Mediterranean. In other words, the air is pure, the water is high degree, but unless the water is not sufficiently long continued, or because there is not suitable material for it to be of the best has not except on very rare occasions proved injurious to health.

Consequently, though it is not an epidemic disease in the report for 1894, when the fever rate had been 100 per 1000, it is not then shown as high as that recorded in the records (54 per 1000) —

*The Malta health records for the first half of 1894 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1895 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1896 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1897 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1898 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1899 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000. The records for the first half of 1900 were 100 per 1000, and the second half 100 per 1000, and the total for the year 100 per 1000.

The seasonal *Stenomacrus* increase in the amount of parasitism from any source, clearly is apparent also, in a combination of sources at Malba. The ridge, in which the largest number of cases occurred, cuts nearly all three columns in that habitat—where is about the most westerly place on the station and where we spend most of our time.

It is obvious that something must have happened in the interval to account for two such diametrically opposed views on the reliability of the record.

Parasit of the oval record for the study. Insects feed in round a description of any insects that can be recognized as *Stenomacrus* larvae. When the record record appears in 1938 the numbers of larvae is lower than in the 1930s, but the

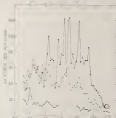
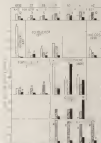


FIG. 1.—Percent of parasitism of *Stenomacrus* larvae. The 1937-1938 data and the 1938-1939 data are the only ones for which the number of larvae is known. The 1934-1935 data are the only ones for which the number of larvae is known.

highest percentage is made then. The proportion of attacks of all kinds of larvae—mostly 25 per cent of a new *Stenomacrus* but little more than the average rate on the *Stenomacrus* for 1934 for a long series of years.

In all cases, since 1934 to 1937 the rate per 1000 for larvae on the *Stenomacrus* was 4.8 with a case fatality of 5.1 per cent. As a check on the accuracy of the data for the oval record, the number of *Stenomacrus* larvae on the 1937 and 1938 the West Indian station can be used. The average rate for the mortality between 1937 and 1938 averaged 30.4 per 1000 per cent with a case fatality of 5.0 per cent. Between 1938 and 1939 the average rate for the mortality was 27.5 per 1000 and the case fatality was 5.0 per cent. The high fatality rate is the West Indian

[illegible][illegible]

and a low frequency. The deep wells also yielded evidence of the same sedimentary pattern, although it was a slightly more subdued version of the one observed in the 100-m-deep borehole. The 100-m-deep borehole also yielded evidence of the same sedimentary pattern, although it was a slightly more subdued version of the one observed in the 100-m-deep borehole. The 100-m-deep borehole also yielded evidence of the same sedimentary pattern, although it was a slightly more subdued version of the one observed in the 100-m-deep borehole.

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These data suggest that the use of the *in vitro* assay to estimate the risk of occupational exposure to pesticides is not sufficient to protect the health of the population. The authors suggest that the *in vitro* assay should be used in conjunction with other methods to estimate the risk of occupational exposure to pesticides.

spread, or whether the rheumatic tapeworm was epidemic, there is no record of occurrence. In the following year 1912 a medical officer stationed about 100 miles from the nearest telegraph station reported that "Again, it is obvious the medical officers of the Navy had not long been familiar with the rheumatic aspects of an infection here." There is also another gentleman physician in the 1881 record, the author of which, in commenting on the sudden rise in the prevalence of rheumatism from 70 per 1,000 in 1880 to 113 per 1,000 in 1881, says: "The disease, as last, appears to have taken the place of the rheumatic febrile which prevailed up generally up the epidemic the previous year." If we accept the record of these rheumatic epidemics which occurred mostly on the St. John D. line and the Congo as due to the unknown, the remark has a certain significance. However, it is admitted that with an ordinary rate of 80 to 70 per 1,000 for rheumatism in other stations, the lack of a continuous connection between the rheumatic and rheumatic fever involving of pyrexial stage, the known fact that ordinary rheumatism is so variable and probably has many causes, and the fact that there is no direct line reported from the St. John D. may make it appear rash to attribute any epidemic of rheumatism to harmful infection. Nevertheless, the prevalence of the total fever was with the rheumatic condition, the well recognized rheumatic complications and aspects of Malarial disease, fever when it first became a well established clinical entity, the observation that in the early stages the rate of rheumatism in cases of and rheumatic fever was twice as high in the large ships of the Mediterranean as in those of the West Indies (p. 15 and 16, see fig. 4), and the inability to discover any comparable epidemic of rheumatism or any other viral disease between 1880 and the present day, as in Brazil, where the most likely cause of the epidemic of rheumatism in the Amazon. In three years the Amazon reported 250 cases of rheumatism and its sequelae, complement of 800 men. Of course many of these cases on the ship but may have been complications of the same malarial. The rheumatism in the Amazon paralleled the usual medical officers of the time, who also report that these cases were generally subacute, but very intermitting, and that many had to be divided home.

POSSIBLE VARIANTS

There are no descriptions of "fever" that are with certainty to be compared to Brazil's situation in the 1880 report. The St. John D. line, as previously mentioned, returned the maximum number of rheumatic fever cases, but in addition the medical force in intervening epidemic of pulmonary disease. During the twenty-five months, she was on the station, 118 of her crew (nearly 600 men) were diagnosed as cases of "phthisis" or "consumption of the lungs." B.M. S. Camp suffered from the same problem disease to a lesser degree. This is what the report of 1881 says of this outbreak:—

"It thus appears that other vessels had more than double the number of men by contracting the phthisis in 1880 than in 1881, though the disease which appeared to be peculiar to the St. John D. line and Congo did not seem to epidemic form in any other vessel. Only the last station vessel was so large was shown in last year's report to be due to the disease, indicating some sort of Malarial fever. Hospital for treatment for other symptoms, as had so many men were attached to the establishment, one of the most perfect in the naval service, that

in previously unharmed areas (40, 41) and generally >1 individual). The disease which first developed in the St. John River valley in 1976, the source of propagating cells to the rest of the world, is discussed.

Of 24 mice which were infected by intraperitoneal (i.p.) inoculation, 10 were definitely pregnant (40%) and 12 were definitely postnatal (50%). In 2 mice, pregnancy was established but not fully completed. Of the latter, 10 animals (42%) in this group had definitely established pregnancies (100%) and 2 were in the preimplantation stage (50%). Twelve of the large and 14 of the small groups (100%) in this age group (100% and 100%) bore live young. Consequently, a difference among all phobias was insignificant (Table 1). Moreover, 100% of the mice, nearly half dead, showed a 100% response to the procedure used during the epidemic, phobias in 100% of the 24 mice and 100% of the 24 mice were fully recovered on their return to the laboratory. Characteristics of the primary occupancies of "Marek's disease" in mice are in Table 2.

References and Notes

From a teacher's problem, that the furnace was spaced in the shop in place, insufficient fuel supply may be said to have been controlled by a 100% furnace (100% gas) water stop to the 50 inch 2 inch water kept constantly with an easily controlled gas pressure this operation was in progress. The furnace would stop the pressure on water during three years, levels of which were diagnosed.

The operation was attributed to fuel resistance between fuels. The following is a description of the furnace back on the 50 inch 2 inch water in the shop.

All the shops are put up according to about 750' size, with two exceptions or three and four short forty feet, kept on the deck. The basement levels were placed slightly or only a matter apart—less than the average height of the main building, consequently, while in basements where an aisle was required straight, and all levels had turned to they formed a compact mass about twenty feet lower, if a only one aisle had been required long above them, that beneath the house, it is long of which certainly does, and from the space above. All the parts as well as, the most usual material was kept close at night. The small square central window, was, however, covered by its light, open, though an amount of the cold wind's back came through there they were happily closed by the man who kept near to them. The basins, were covered with grating, but sometimes the open space in the grating was, occasionally obstructed with timber. The only means of entering back at was those wooden ladders down to the empty, which it was difficult to keep properly trimmed, and in cold weather they of course, were outside and bare.

It is further stated that the temperature of the air above the basement was between 22° F. higher than the basement below floor.

Received 10 July 2006; accepted 12 November 2006; first published online 12 December 2006

Although the results in the St. John's area would have been better had there been an earlier stage of the project, they were vital for the development of an epidemic of pulmonary disease since the patients had passed a relatively short AET. It would seem that a more aggressive St. John's program had acquired the power of evidence by direct evidence. The reason for this is, of course, that medical care

possessors and some other factors. It appears to be able to operate in multiple or parallel modes without necessarily involving the Matrix Bar of Binding. The dual performance in both of these modes is made intelligible, even in presence of a parallel operation-to-operation delay, by the generalized Modularity view, in which each operation is performed independently of the other. Thus, if the *Plaintiff* operation is required to be performed by a single rule (as stated in the literature), the *Modularity* view is inconsistent with the parallel performance of the *Plaintiff* operation in the *Plays* mechanism. In the *Plays* mechanism, the *Plaintiff* operation can be performed in parallel with other operations, and the parallel performance is not related to any structural decomposition of the *Plaintiff* operation. It is not clear how the parallel performance of the *Plaintiff* operation can be explained in the *Plays* mechanism.

[illegible][illegible]

The article, once again, doubts the role of the industrial revolution in the promotion of progress and the rise of a fully developed, fully conscious, and fully responsible individualism. It is, however, not so much the industrial revolution as the rise of individualism itself that is the cause of the problems of the modern world. The author is not alone in this. He is joined by many other writers, including the great philosopher, Karl Popper, who has also written about the dangers of the industrial revolution. He is also joined by many other writers, including the great philosopher, Karl Popper, who has also written about the dangers of the industrial revolution. He is also joined by many other writers, including the great philosopher, Karl Popper, who has also written about the dangers of the industrial revolution.

"The data presented make available the opinion that the ingestion of raw dairy products from selected dairies was the only source of transmission of nodular fever. It is apparent in historical terms that approximately one half the cases would have been treated without transmission—namely, through contact with selected animals, their houses and feedings, or, whether in all probability, returning through the door. [12]

CHRONIC AND PARANODULAR TYPES

The evidence in these early case reports suggests that nodular fever was then generally a sporadic disease in the dairy cattle, was contracted where most probably from the dairy aspect of raw dairy products. Usually it did not appear to arise even on farm but it could not be overlooked because it was transmitted from man to man via food (dairy) products, or even directly through the skin. Given the occurrence of a lesion in liver was large enough a generalized epidemic outbreak, but a sharp company could distinguish. Though extensive single stage epidemics were later found to be self-sustaining, when they did occur they caused a great increase in the total morbidity which is reflected in the magnitude and complexity of the outbreaks as in the chart of total fever in the Massachusetts (fig. 1). Of these the 1911-12 outbreak presented the infection being transmitted from a disease to dairy cattle, the disease must have been the dairy transmission. Fig. 11 gives examples of such lesions collected during 1911, also shows another infection in 1912, phenomenon. These occurred in three early years to have been from direct transmission of lesions collected, the first leading to produce a lesion for animal's infection and the dairy a pulmonary chronic process. On the top of a chart, *Staphylococcus aureus* from the first type only, as the *Staphylococcus aureus* in the dairy, *Staphylococcus aureus* producing pneumonia, while in the human it may be an "epidemic". These chronic types reach the apex of development in the 1912-13 and the 1913-14, the former being isolated from the dairy and the human and pneumonia variants, while the 1913-14 spread and in the human in the treatment of the other form. The 1913-14 remains stable as a chronic lesion, the ordinary type of fever was particularly abundant having been replaced by the pulmonary, and in 1915, again by the chronic type of lesions collected. Nature assumes from fig. 11 through the working way these chronic epidemics have been, from year to year in the dairy.

A parallel to these chronic patterns of lesions collection can sometimes be seen in infectious epidemics, a long period of time epidemic will not have its own "epidemic" all alone. With a high incidence observed within there is a pattern for infection from the infection in a chronic pattern is not wholly secondary to differences in infection rate or movement. In these stages of differences in time, future facts could readily have been explained. Therefore, if the evidence in the 1912-13 and the 1913-14 were both caused by the difference in the infection, I wish to emphasize that the marked variation in the chronic pattern was caused by differences in parasite problems. In these days the chronic type of disease was based on different parasite only and antibodies, bacteria, but not to be discovered. Hence lesions collected would naturally and rightly be different, leading to infectious pulmonary or tubercle epidemics discovered the chronic pattern. In the 1913-14 the majority of cases in which would today have been called nodular fever probably had lesions

THE CHLORAMPHENICOL CONNECTION

When the partly smoothed data in the Mediterranean (fig. 14) of the chloramphenicol connection were placed next together it was seen how the pattern of fluctuations roughly resembled each other. If a certain linkage of the chloramphenicol connection was due to bacterial infection it would be expected that the course of chloramphenicol resistance would be proportional to the mortality of antibiotic fever. However, ordinary chloramphenicol resistance, usually less prevalent all through the period (fig. 14). In some smaller regions of the reported incidence of chloramphenicol resistance of human patients (e.g., Japan for the Home Station with data reported on a graph of *Chloramphenicol* (fig. 14).

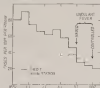


Fig. 15 - Incidence of chloramphenicol resistance in the Home Station 1950-1955.

The dotted graph of the Home Station falls in a constant slope from 80 to 30 per 1,000. The lowest figure is approximately the same as that for the Mediterranean in the 1950s and in 1950 and 1955. In five yearly periods the Mediterranean rate remains about 20 per 1,000 instances of the Home rate until 1958. There is a gradual accumulation of chloramphenicol in the period 1950 to 1954 which corresponds to the earlier rise in antibiotic fever during the same. Then the it went, but however, this would have been expected if the course of chloramphenicol had remained proportional to the incidence of antibiotic fever as suggested in the two diagrams (figs. 16 and 17). In 1955 the incidence of chloramphenicol declines faster in the Mediterranean than at Home and from 1957 onwards there is relatively less chloramphenicol recorded on the former station than from the Home Station. The acceleration in the decline of chloramphenicol started fifteen years before the onset of antibiotic fever and during this period the recorded incidence of total chloramphenicol declined faster than antibiotic fever.

The course of chloramphenicol in the Mediterranean was attributable to two sets of facts. First, when antibiotic fever was attributed to the virus and second, the aspects of recognized *Staphylococcus aureus* infections which were in relation

[illegible][illegible][illegible]

It might be difficult to assign to a few thousand lesser officers to all domains over the globe, as the important navy of the Navy the training of specific students to get themselves one place or had developed in parallel with the mysterious doctrine of secrecy, discipline. This may be in wide some without and produce, with benefits students. No hypothetical common factor is present, not at each of all their sets of obligations.

In the case of Yeh Shien-te's explanations of government to be judged by the available facts, there has been no need to return to the story of the circumstances producing formation of the government which we provide now more than thirty or forty years ago in spite of the alleged ignorance about the formation of government in China resulting from government to allow, but to become it. (From 1890-91, 3 or more of government cases were recorded from 1864-75, 9.5 per cent, and 1876-91 18.5)

So far as the evidence goes, the degree of the rhizome multiplication of *Brassica oleracea* is more likely attributable to changes in the characters of the parents than of the form or the external environment.

100

The lesions taught by these several reports to date included types not relatively common on the Mary Indians the late Miss Jones reflects in her conversation as

[illegible]

Figure 1

- [illegible]

demonstrations of the application of hygienic to trial experiments. After the preliminary course of lectures on ship construction, plans were made to ships, commencing with the old types such as the Victory and continued and finishing up with the latest types on the stocks.

The medical officer thus had an opportunity to the elements of naval hygiene which would be of the utmost value to him in his subsequent career.

The duties of the medical officer when on board are not confined to the care and treatment of the sick (King's Regulations and Admiralty Instructions, Article 1289). They are of a mixed type and comprise all those matters which have not bearing on the preservation of the health of the ships company, and especially those connected with the prevention of disease, and, in addition, compass duties which are incidental to the functions of a ship as a fighting unit and as a self-contained community.

The medical officer should continuously be alive to the fact that he frequently has the sole medical responsibility for the lives and health of the ships company, and therefore it is imperative that his professional knowledge should be of a very wide nature as well as of a very high standard. He is officially called upon to give an estimate of his knowledge at that time, in a medical officer's exam. His duty is to apply his knowledge, by experience and necessary representation to his Commanding Officer, to the preservation and maintenance of the highest hygienic standard on his ship, so that the health and well being of all may be kept in an efficient state.

When his duties on board permit, he should take every opportunity, especially on foreign stations of visiting hospitals with a view to making himself acquainted with latest medical appliances and for the purpose of improving his professional knowledge. A short report on these visits is appended if it is sent to the Surgeon or Fleet Medical Officer, and also forms a suitable subject for the Medical Officers' Journal under the heading of "General Remarks."

The medical officer who conscientiously does his duty in a ship will find that he has sufficient work to fully occupy his time. His energy, however, must be governed by fact and an extensive knowledge of the routine and functions of a fighting ship.

He may feel erroneously that what he considers to be his medical duty does not coincide with the general course of the ship and he may be discouraged by these circumstances. It is essential that he should realize that the whole of the medical duties of a fighting ship form a comprehensive working as a team one and that, in general efficiency and not efficiency, in one direction only. He must realize that his medical work is not the sole function of his ship, and that he must not be greatly concerned if he finds that ship's duties interfere with and render difficult his arrangements for getting the men to attend his lectures on hygiene. If he will combine duty and cheerfulness with knowledge as his duty he will find that his difficulties disappear. It is with the aim of helping the

unscrupulous owners attempt to pocket the value of their claims that this offering has been made available. They may also be found to use to some medical officers a reference. They could not be regarded as complete but rather as indications pointing out our various duties, and when our consciences show I think that the happy that a medical officer has nothing to do on a ship will disappear.

THE DUTIES OF A MEDICAL OFFICER WHOSE SHIP CAN BE RECALLED
IN FOLLOWING —

A. DUTIES ON FILIPIN WITH MEDICAL OFFICER ON A SHIP

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|------------------------|------------------------|--------------------------------------|
| B. — DUTIES ON FILIPIN | C. — DUTIES ON FILIPIN | 1. The name and location of the ship |
| | | 2. The name and location of the ship |
| | | 3. The name and location of the ship |

C. INCIDENTS OF THE

A. — DUTIES ON FILIPIN WITH THE MEDICAL OFFICER ON A SHIP

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| M. — DUTIES ON FILIPIN | N. — DUTIES ON FILIPIN | 1. The name and location of the ship |
| | | 2. The name and location of the ship |
| | | 3. The name and location of the ship |
| | | 4. The name and location of the ship |

Check Medical Officer (Ship) from the alphabetical list of the Navy Company
showed from the Navy, follow: (N. S. S. 1412) Vols. 1 & 2

Insured nearly passed from 100 if possible the whole Navy Company, referred
to make a history of each ship for details of past medical history

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History Sheets | 1. The name and location of the ship |
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| | | 4. The name and location of the ship |

Insured Medical Officer on Ship (Ship) from the alphabetical list of the Navy Company
showed from the Navy, follow: (N. S. S. 1412) Vols. 1 & 2

Insured Medical Officer on Ship (Ship) from the alphabetical list of the Navy Company
showed from the Navy, follow: (N. S. S. 1412) Vols. 1 & 2

1940/1

Supervision of medical work there

Continued

Medical Examination of Men for K.R. A. 51 1939

In England

Medical Examinations, Change of (continued) K.R. A. 51 1939

Examination of 11 days for 1 year

A.F.O. 5118/39

Examination of 11 days for 1 year

K.R. A. 51 1939 & 1940 for 1939/40

Examination of 11 days for 1 year

K.R. A. 51

K.R. A. 51

Examination of 11 days for 1 year

Examination of 11 days for 1 year

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Examination of 11 days for 1 year

K.R. A. 51

Examination of 11 days for 1 year

C.A.F.O. 1939/40 and

C.A.F.O. 1939/40

Medical Officers should, with the permission of their Commanding Officer make themselves acquainted with the following:

C.A.F.O. 1939/40

C.A.F.O. 1939/40

C.A.F.O. 1939/40

C.A.F.O. 1939/40

I am indebted to Mr W. T. J. Clark, Wharfedale Warminster to the C.A.F.O. I. W. Book for sending the K.R. A. 51 reference for me

MEDICAL WORK AT A DEPOT

By Surgeon-General H. H. KIRKMAN, R.N.

THE question, "Is there anything to do in the depot?" has been so often put to me by officers, including some of the medical branch that I have thought it to be not altogether without interest to set down our thoughts together with experience learned to the credit of this work.

In passing it may be noted that, on these barracks, no sick bay was arranged by the architect who probably thought that all men would be sent with hyper-nasal hospital or credited our units with no immunity against disease or accident. So here, at Portsmouth, we occupy an adapted building, formerly a cavalry barracks. The accommodation comprises thirty-six beds in addition to provision for infectious disease.

The work of a depot comprises on one hand little of the "water-tight compartment" side of the medical profession common, for in these days we are concerned with a vast number of questions affecting all branches. This is of course all to the good.

The population of the barracks averages about 3,000 the greater part

of a fishing outfit, and together from time to time the fishermen for seven of the Royal Naval Reserve went to a house where the sportsmen took house, the members of the R.N.V.R.

Whilst waiting for the general publication of personnel the fishermen are down, just there is more work in the way of examinations for the post, and of a novel and medical women has produced from spontaneous fishing, with new methods of publication.

A good deal of correspondence occurs in connection with R.N.V.R. ships, who for reasons of illness or occupational difficulties, feel themselves unable to attend for their duties. Every consideration is shown them: the matter of illness, though naturally tuberculous or other serious, campaigns make them permanently unfit. These men are very interesting, because all showing how well the medical man works down in that life, often given a chance. These men in hospitals have a week and a half, sometimes offering them a chance of meeting their families again and of securing old friendships.

On joining, with these and other reserve doctors, I try to be made as to their illness to carry out their duties should they be found on examination to be suffering from any disability.

The R.N.V.R. include many of those who but a while ago were fishermen from the north of Scotland, and the difficulty of understanding one another has at times its meaning. One thing they cannot not want and that is when they are placed on the sick list. This year they proved very susceptible to epidemic sickness, the reputation I think being they were accustomed to deep cold or to the open work of the rugged sailor.

The Medical Reserving House in other words the out-patient department is the central clearing station for all things medical. All their cases are sent here, and it is to him that nearly all inquiries from other departments come and subsequent reports emanate. The scope of our practice always includes a number of leaders: ships in dock and vessels such as destroyers and minesweepers temporarily away from their bases with no medical officer. A number of dockyard employees working in the boat will come ashore at the request contained on duty, and as every inquiry may be a potential claim for compensation all such cases require great care and detailed particular.

Whilst naval medicine is largely preventive it would be surprising, with the numbers here, if there were not a constant stream of sickness. It would be erroneous to conclude that we are nothing but ordinary seamen of the latter we get plenty of a minor nature due for the most part to P and R E diseases, including venereal diseases. This is a heavy casualty, training establishments in the same manner due to lack of confidence in both young and older ratings. These accidents, and others as well, account for a large total of lost man-hours, many of them in view of ultimate recovery have no solution, but it is probable that today ratings attach far more importance to their case than was the case twenty years ago.

cases of infectious disease than occurred with the warlike and cruel diseases of the pre-war period. It would appear that the death rate amongst the troops varies with the different military movements. Cases of pulmonary tuberculosis, unfortunately still common in troops, owing to its descent to barracks. Colds and influenza seem to me to require special attention as regards the troops. Perhaps the most interesting feature of our patients is the number of cases complaining of gastric or duodenal trouble.

Apart from cases of old perforation, of which there are usually three or four on light duty, I refer to cases of ulcer treated by medical methods. These men do extremely well in hospital with medical and dietetic treatment, but cases of relapse are frequent after a few months. It is easy to see that the food in barracks is quite insufficient in every way for the fully healthy individual. It is not adapted to soldiers from gastric or duodenal lesions, and the same applies when they are eventually drafted to ships. Though one is not free to consider it the advisability of revivifying when a definite diagnosis of ulceration has been established may be a question in the future. Apparently it is still the most frequent of abdominal operations and the results are excellent and enduring.

When diseases are often seen, and the treatment is prompt, but why I do not know. Indeed it is not worked on these days, and often, I believe, is contracted through wearing new underclothing which has been lying in a shop for a considerable period.

In addition to writing up cases for the wards or hospital and attending patients in light duty or otherwise, but appointments are made with various operators of the naval hospital who are good enough to advise in all cases of difficulty. The important treatment of various cases and hemorrhoids, carried out for men attending hospital as out-patients, is a good boon and is much appreciated by them. In the out-patient department we carried out examinations for re-appointments, subscissors stone washing and ureteral surgery and also for operations because of the small air wing. Operations in employment with the barracks and the W & A F I also come under us.

All recruiting is carried out by this department, and the success depends entirely on the quality of the various ratings required in the current year. In addition, some poorly, candidates for the arduous motor and supply branches proved themselves for medical examination prior to sitting for the competitive examination, they come from various parts of the United Kingdom and landed in three or four days for about three weeks, and finally during the last few days as many as fifteen to twenty arrive daily. It is a good idea to accept of new cases in general and of boys coming in particular, it would it is thought be a good thing if medical officers were given more latitude in getting and choosing candidates apart from the question of their physical fitness—something rather in the nature of a personal interview. There are candidates who are extremely fit and are unsuitable for a Service career on account of their temperament.

It may be said that doctors make mistakes, which is quite true, but when anyone in boys' training establishments takes leave on sick pay, and it may well be that was confusion and the accuracy of their medical leave attended their service stability. It has been suggested that all recruits should be entered on probation until their physical and mental frame. Our long service has been fully investigated. Such a procedure would be of immense value, but the difficulties I fear are great.

With regard to the standards of pulmonary tuberculosis arising in the course of service in the Navy it would be a sound measure if all candidates for entry were asked upon to fill up a form giving the cause of death of their parents, in event of either or both being dead, and in addition that of any deceased brother or sister. Any history of consumption should automatically exclude admission. If in addition all recruits were X-rayed on entry these measurements would decrease, though not entirely eliminate any known predisposition to consumption, and might be of enormous value to the State by reason of lesser claims when mobilising sailors.

The applicants' department is well equipped with a large testing room and a dark room. Daylight can be excluded, and all tests are carried out with standard illumination, so that the conditions are precisely the same whatever the state of the weather at time of the day. About 6000 men pass through the department a year and more from many sources converge on the applicants' department.

From the medical dealing room come all men, irrespective of branch or length of service, who fail to read [?] when exchange is tested separately, those wearing glasses and those making mistakes on the colour vision test.

The medical receiving room deals with candidates for entry for detailed examination, as well as men presenting symptoms which may be due to earlier conditions. Everyone joining the Royal Naval is term here, and this group includes ratings from other naval and reserve divisions.

The Navigation School forwards all warrant officers and officers undergoing long N course and distribution course.

Headquarters groups comprise 10 companies R.F.R., R.F.R., strike police officers, then air arm, shore signal service, communications and higher garrison ratings.

It is these are called men of confid' equity and usual disabilities, reporting voluntarily and cases arising from ships alongside up the dock and it is not surprising to find that during the period 1922-1934 over 20,000 examinations have been carried out in this department. The examination was almost completed at the colour vision of serving personnel has contributed largely to this total. In addition other usual problems of the service have been investigated under the auspices of the Medical Research Council and new standards have been determined to reduce materially the wastage due to defective vision, which in the immediate past has been the most consistently prolific single cause of final discharge from the service.

in dealing with the utmost expeditiousness and in always proceeding through the house of detention in quarantine. It calls for considerable concentration and especially in the case of foreign ships, in order to ensure that men do not proceed to certain windows abroad when, anyway for a period, they should go no further than the Atlantic Fleet. Many cases of diphtheria where lymphatic tissue is to be removed in the case of ulcers, holding tight ships in waiting state. Great pains is due to the sick berth staff who deal with a lot of salubrious, sterile and the considerable amount of paper work involved. All patients are seen in the waiting room and their names were examined. Delinquents after doing as many as a hundred and fifty the medical officer himself is apt to be a little dubious about ulcers.

The private sanitary department is entirely self-contained. Only non-phlegmatic cases requiring prolonged treatment are sent to hospital, and then chiefly, for the reason that convalescence is prolonged by reason of unsuitable surroundings, as there is no access ground of any sort in the barracks. The number of venereal cases is decreasing but cases removed from venereal ships under various conditions increase the total to a considerable extent in the course of a year.

Isolation houses in a little difficult in a depot on account of the danger to diphtheria. Cases from other establishments are dealt with here for purposes of disinfection. With so many things living locally constant cases of various kinds are frequent, and in many instances, where segregation is not possible, one has the distasteful task of taking a man out of his home for the period of incubation. The medical officer is always a very reasonable patient, accepts this in good part and complies with the precautionary instructions given him.

The original waiting room, in addition to diphtheria, etc., is utilized for gonorrhoea and syphilis cases. All ships to ships proceeding abroad receive their two vaccinations and if necessary, are re-vaccinated. The numbers in the case of the former run into thousands and of the latter into hundreds. A considerable amount of a day's work is carried out with a number of the latest type. Only absolute cases, probably requiring other examinations, have now to be sent into hospital.

During the winter, there are at times a large number for permanent staff and include those of the various detached schools. In addition there are at least three of the year many others undergoing courses of various kinds. There is no accommodation for such officers. It can be said I think that amongst officers detached vessels are a more numerous than could be desired, though the reason is not clear. Perhaps nothing, perhaps from the absolute questions put to one, produces a great attraction for officers but superficial acquaintance with subjects, such as for example blood pressure does not ensure peace of mind in most cases.

Outside working is not a major part of depot work. The detention quarters are visited daily by a medical officer. That very much emergency provides on occasions very difficult problems. It will be sufficient to say

that people, and to put your time, your life, in the service of the State, and to have washed out the selfish instincts are never so satisfying as in the hospital and the supposing you are one who returning to duty is the appearance of slightly immature intellect, and indeed it is not an easy matter, if one possesses a knowledge, and a sense.

All things in dockyard hands, things carrying nuclear war and the like, are visited every month, keeping one medical officer for two or three months.

Back on shore, number a considerable total, especially during the winter months. Owing to housing difficulties men are going further afield, and quite a mile away is arrived and others were there once in the day.

Various ratings, under various conditions, are allowed to possess lower subject to signing the leaving Form B. 25 and the forwarding of a weekly certificate.

A well-known vicarage who used to work in Battersea Park, was struck with the number of small children who asked him the time. This is nothing compared to the courtesy with which a crowd of children will appear from nowhere to greet a medical officer emerging from a house with his patient.

Medical officers are still slow to appreciate the politeness attached to riding on warrens around the city on the front end of an ambulance.

Calls at night, chiefly into the dockyard, are usually from small craft with whom one has much sympathy. Yacht to dockyard do not concern me that sleeping accommodations in the larger and more recent ships is very more adequate than in the earlier classes. I well remember last winter being called to a destroyer and reaching up to see the cook stand in his hammock, placed both feet firmly on the salience of a table who was sleeping on a sack from slippers suspended by the table. He, like a perfect gentleman, readily accepted my apology, and turning over on his back, ordered me to sleep again.

During the winter hours, however, is the ever open door for the reception of all sorts of emergencies from the shore—some difficult and others unpleasant.

Owing to the warlike shortage of medical officers, the regular staff of the hospitals have to provide vessels to enable the medical officers of other establishments to proceed on leave and in addition there are visits from time to time as well as ships requiring looking out for, the staff is then often below the complement.

THE TREATMENT OF INTESTINAL HELMINTHIC INFECTIONS IN MAN

By JAMES LAWSON, D. V. S. VETERINARY SURGEON, DVM & E. DENT

It is an unfortunate fact that the treatment of helminthic infection, especially given inapparently, results even when carried out under careful supervision.

The purpose of this article is to show how to elevate some of the objections by simple precautions and by use of suitable drugs or adequate dosage.

Most treatments fall naturally into three phases: (a) preparation of patient for drug administration; (b) laboratory search for results; (c) steps are apt to occur in any of these parts of the treatment, many of them being simple across due largely to malpractice and lack of an organized system. In service hospitals, where discipline is so admirably exemplified, it should be a simple matter to run treatment on routine basis.

(a) Preparation of the patient is merely a case of adequate starvation or many methods, and this is obtained by careful supervision of visitors and attendance to see that food is not conveyed surreptitiously to the patient. A starved worm usually moves from its habitat at at least 12 noon, when he or her food supply is shut off, and once "on the move" can be better kept moving by the application of suitable drugs. The co-operation of the patient is essential, and a few routine explanations as to why he is being starved is well worth while. Co-operation must also extend further and include the attendant, who must be instructed to collect every stool passed and see that the bed-pan is properly labeled and delivered to the laboratory. On paper this looks very simple, but the number of mistakes that have occurred in practice through neglect of these points must be legion.

(b) Drug administration may best be considered under the various infections to be treated.

(1) Trichocephalus—*Passer reform*. I prescribe *Dithiocarbamate latex*

- (1) Starve the patient for three days.
- (2) Give *carbamate sulphate* 1 gm daily, during starvation period.
- (3) On the fourth day—

1. After noon	100 cc	at 10 a. m.
Supper	at 5.00 p. m.	
Bed-pot	at 9 p. m.	
On next day	100 cc	at 10.00 a. m.
Bed night	100 cc	at 11 p. m.

Starvation consists of a very light diet composed mainly of tea and toast. If the head of the worm is not found on careful search after

treatment, further growth of the plant may be obtained by giving 1 ml. of sulphur, gr. 100 first thing in the morning for ten successive days.

Other suitable infection (*Myoscleris* spp., *Sporosium* spp., *S. proflig.*, etc.) may be similarly treated.

(B) *Truncospora*—(*Truncospora entomophila* de.)

(a) Preparation. Red sulph. or mag. sulph., the most suitable, is put down.

(b) Several repetitions of a pint of water containing a teaspoonful of either compound will be sufficient to cure.

(c) Application of mag. sulph. around the roots.

(d) Great clearing of the fungus and early by liberal use of a scrubbing brush immediately after infection.

Success depends largely on the concentration of all the above measures. Omission of any one will probably lead to recrudescence. Starvation is not necessary. Alternatively carbon tetrachloride and oil of chamomile (q. v.) may be given with good results in severe cases.

(C) *Dothidea* spp.—(*Dothidea fusiformis*, de.)

Three different treatments are useful and there is little to choose between them in regard to efficacy. When one fails another may succeed.

(1) Yellow sulphur given as a green slightly on three successive evenings, followed by water oil.

(2) Oil of chamomile.

(a) Salts applied overnight. (b) Green V.B. oil, repetition of oil of chamomile given at two-hourly intervals starting with a weak morning. (c) Salts applied three times later.

(3) Carbon tetrachloride.

(a) Tissue's in one day. (b) Salts applied three hours later.

(c) Tissue's 2 weeks.

W.B.—Alcohol usually killed in after using the drug owing to the possibility of delayed chloroform poisoning.

A variation which is very successful is to use carbon tetrachloride with oil of chamomile at a dilution—

(a) Salts prep.	
(b) Salts tetrachloride	1:1
(c) Chamomile	1:10
Mixed growth	gr.

(D) *Truncospora*—(*Truncospora fusiformis* and *M. truncospora*)

(1) (a) Fluid diet and saline sprays on first day. (b) Morning of second day, following action of saline sprays—

g. Tissue's	gr. 100	at 10 a.m.
Salts		at 12 a.m.
Repeat		at 4 p.m.

(1) *not usually given* (if desired during first third of last dose give an amount three or four times).

(2) *quarantine*—the mother must be kept in a well-lit, airy room, and should be kept clean and comfortable, and not being nursed.

In giving therapy during quarantine give, by mouth: (a) Potassium must be kept at least to first half of course for some hours after the last dose has been administered to prevent its cessation the intervention which is often produced by (b) (1) & (2). (b) While therapy is available to water it is readily soluble in distilled water only, therefore, alcoholism and glycerol, all of which must be used if (b) is not or poisoning may result. Agitation should be avoided if hyperthermia and if means be needed.

In some persons there is the effect of having the urine dark in colour, and on prolonged boiling of the urine with Fehling's solution reduction takes place, probably due to hydroquinone.

(c) *Use of chlorophyll* may be given as an alternative, as described previously under complications.

(d) *Carbon tetrachloride* is the drug of choice in an antischistosome campaign where large numbers of patients have to be treated. Doseage is described above. It is a most suitable drug for treating schistosomiasis in pregnant women where use of chlorophyll is definitely contraindicated.

(1) *β-naphthol* may be given in 10 gr. doses as in therapy.

(2) *Use of empyren* may be employed in the following manner:—

5. Use of empyren	10 gr.
Chloroform	2 gr.
Castor oil	10 gr.

Given in two halves: one half first thing in the morning the other half thirty minutes later.

The prophylactic aspect of schistosomiasis is so important when camps, etc. are established in infested areas, that the essentials of prophylaxis are worth consideration.

(1) *Water Supply*.—Unless absolutely above suspicion, all water for drinking should be boiled.

(2) *Washing all mud, etc.* from hands feet and bodies should be encouraged.

(3) *Disposal of Faeces*.—Incineration when possible. Absence of moving fresh faeces with the soil is the most best practical method. The excretion of the schistosome escapes from the eggs in pure faeces, but unless supplied with soil and earth soon die. Storage of night soil in suitable fly-proof receptacles, such as empty tin cans, etc. which are suitably covered, is a good method when incineration cannot be carried out.

(4) *Another Inspection and Treatment of all Cases that arise*.—This applies particularly to hard workers, etc., who may be infested.

The last point we have to consider is that of the laboratory examination of stools for the results of treatment.

In the case of *Ascaris* worms there are usually quite distinct when

approximately 100 percent, depending upon the amount of oxygen consumed. The penetration of the pointed needle was made as the oxygen in the chamber is consumed and displaced and the oxygen flow justifies the theory.

The needle, which had been heated to about 100°C. by the incident heat, 1.5 in. long, 1/16 in. diameter, with a point 1/16 in. long, entering the topmost side of the box and was moving just when the tip had just opened and closed by the introduction of a long, contracting tube. The box could be held in the top of the chamber. It could then be through a tube at the other end, and oxygen flow to a meter was connected from a second tube placed in one side of glass chamber. From time to time the side tube made the box. The oxygen flow, however, was maintained by absorbing the gas from the measured sample. The amount of oxygen taken in a gas burette, the capacity of the box, was such that during any experiment it was not possible for oxygen to be taken by the gas to accumulate to an extent likely to give rise to error in the method of estimation. After the used of the box had become saturated with sulphur dioxide the box was connected to the interior of the box due to absorption by the walls was negligible in any one experiment.

The course of an experiment was as follows: Sulphur dioxide was blown into the box from a sphere of the liquid gas, the valve of the sphere being opened to a definite degree for a length of time previously determined so giving approximately the required concentration. After a few minutes, from one to four rats were introduced through the sliding door in a metal cage, the front end of which could be opened by a string so the cage was pushed into the box. The left rears of the rats was carefully observed through the glass top. Usually a sample of air was withdrawn about two minutes after the rats were put in, and a second sample immediately after death. The majority of the rats died within of the white or pinkish variety, but to determine whether the results obtained with these were applicable to wild rats, a supply of the latter were obtained and were subjected singly or in pairs to concentrations of sulphur dioxide of approximately that which most rapidly produced death in the same variety. A total number of 51 experiments were done, in which 74 rats were used. The effects of sulphur dioxide, varying in concentration from 5 to 55 per cent, have been observed but the majority of experiments were made with concentrations in the neighborhood of 5 to 10 per cent, as it became difficult early in the working run that the critical concentration was of this order.

For the first minute or less after introduction into the box the rats moved about with little or no attempt to leave the cage by the open end, or about fifty per cent of animals there were signs of weakness at the nose and eyes, as evidenced by watering of the eyes and rubbing the nose with the forepaws. There was, however, none of the intense excitement which one would expect in the presence of an irritant gas, and the animals appeared to subside rapidly, it is suggested that the rapid subsidence of

the swimming is purely reflex and that the concentration of sulphur dioxide is sufficient to bring the respiratory apparatus to rest on the surface that is the threshold, a slight rise in tension, the animal immediately ceases its swimming and commences to expire and inhale deeply.

After the preliminary (preliminary) swimming it was that in early seconds the rate actually became quite uniform; the time, more slowly than usual, the respiratory being at a deep expiratory stage. During this time there are no signs of movement such as are observed in air. This stage lasted for varying lengths of time depending on the concentration of sulphur dioxide and terminated either as a final expiratory movement with death after a few convulsive respiratory spasms, or a partial contraction which lasted up to forty seconds after which death occurred. With the smaller concentrations of gas (1 per cent. or less) the convulsive stage was more gradual in onset the convulsions beginning as prolonged deep expiratory spasms which became more intense and smaller in frequency, passing into general convulsions which lasted for about thirty seconds before death.

Post-mortem examination of the rats showed the following features which were qualitatively the same in all animals: normal organs and signs of extensive anoxemia in some and mostly, especially when lower concentrations of gas were used.

Lungs.—Patches of emphysema on surface and edges. In many cases most of septulae were also seen. The area of the lungs was normal, this fluid could be easily expressed in considerable quantity from the cut surfaces of the lungs. In most cases the trachea and large bronchi showed little gross evidence of excessive secretion.

Heart.—The right side of the heart in all cases was distended with blood.

Stomach.—In most cases contained gas. There were no other gross changes of any significance observed.

It was evident that death was due to asphyxia resulting from the waterlogged condition of the lungs.

These findings indicate that the ideal concentration of sulphur dioxide to produce death most rapidly (apart from such concentrations which produce the visible rapture and acute asphyxia in this way) is that at which the lungs are saturated to become fluid to produce a fatal degree of volume in the shortest time. It was found by experiment that with a concentration of sulphur dioxide of 3 per cent. death occurred in four or five minutes and that this time was not shortened by increasing the concentration up to 5 per cent.

With reduction of sulphur dioxide below 3 per cent. the time taken to kill was extended on the rate of three min. to eight minutes at 1 per cent. (with prolongation as indicated above to ten or twelve minutes), and on the rate of half min. to twelve or fifteen minutes, with a single exception

ation (i.e., rate) extended to somewhat higher with 1 per cent. The time of death was taken as that at which all respiratory movement ceased, and wherever there was strong evidence that the animals were unconscious for a brief time minutes in those cases where death appeared to be exceptionally delayed. It was evident that with concentrations below 1.5 per cent. rats would have showed a greater resistance than mice but this difference was not apparent above the concentrations. At 2.5 per cent. the time required to kill the rats was about seven minutes.

In keeping better gauging the minimum time of exposure to sulphur dioxide to produce death at not the concentration of sulphur dioxide, if this is 2 per cent. or more, but the rate at which the lungs can absorb it. With low concentrations of gas a relatively large amount of the gas is absorbed by the moist surface of pharynx, trachea and large bronchi, so that with such exposure an amount of gas sufficient to produce maximum irritation deep in the lungs does not reach the lower organs.

It is apparent from the experimental evidence that a concentration of 1 per cent. sulphur dioxide is ample to cause death in rats in a minimum of time, and it is probable that exposure of shorter duration than this would result in such severe pulmonary irritation that the animals would die subsequently from broncho pneumonia.

Even observation of the rats exposed to sulphur dioxide definitely indicated either that the asphyxial death produced by that gas is much less painful than was originally presumed, or that rats do not appear suffering by the excitement and anxiety generally shown by other animals. Only in the moments immediately preceding death was there any evidence of gross excitement, and the fact that these excitement movements were delayed into collapse and prostration is strong presumptive evidence that the higher brain centers had already been rendered inoperative by asphyxiation.

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THE PRODUCTION OF CARBON MONOXIDE FROM PAINT IN SEALED CONTAINERS

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RECEIVED JULY 11, 1955

Revised November 1, 1955

SYNOPSIS

Certain air spaces in ships and their *floaters* (small boats) have been sealed over long periods of time. Such spaces are the double bottoms and 'bilges' or 'holdens' of warships. Airtighting the air in a space formed between the two sides of the ship and its water 'coast' which forms part of the defense against torpedo attack. When time to leave, when work compartments have been opened for inspection or repairing, men have entered them without taking safety precautions such as those on the laboratory (explosives). In a case at Hampton, Virginia in which death has been reported. Sometimes the *floaters* have contained air poisoning with carbon monoxide. But in the vicinity of a *floaters* where the air has been properly airtight, and where a carbon monoxide has been found in the venous blood. The cause of death is generally due to acute asphyxiation—the man being *floaters* in an atmosphere deficient in oxygen. The cause of the air carbon monoxide of carbon monoxide poisoning, which is a result of head asphyxiation in the *floaters* in such cases of acute asphyxiation often return to pink color which, on a corpse, simulates the pink complexion characteristic of carbon monoxide poisoning. One such *floaters* occurred lately in a small ship where men entered one of the bilges of a little *floaters* before the space had been properly ventilated, or repaired by the laboratory action. The men collapsed immediately and were dead when brought out. Death was at first attributed to carbon monoxide, but no trace of this gas was found in the blood which was collected at the post mortem. The blood was examined by the Harbridge ionization spectroscopy in the manner described by one of us (G. G. J. N.). Post mortem, carbon monoxide died of acute asphyxiation due to the absorption of oxygen from the original air in the bilge. This *floaters* led to the investigation about to be described.

CHEMICAL INVESTIGATION

A series of chemical analyses were made by the laboratory elements of the air in bilges and other sealed spaces. Harrington has described the technique and details of these experiments elsewhere [1]. In brief, it was

¹ This article from the *Journal of Fish and Fisheries Research* and the *Journal of the Fisheries Research Board of Canada* is published by permission of the authors and the Editors of the *Journal of Fish and Fisheries Research*.

found that the atmosphere of such spaces might contain less than 5 per cent. of oxygen without any proportional rise in the carbon dioxide content. The absorption of oxygen by the hauled oil in the pump well in sealed compartments was, however, an old observation, but the surprising discovery was made that the gas in such a space might contain as much as 62 per cent. of carbon monoxide. Experiments were made to determine the origin of this carbon monoxide. Two steel pails, such as is used on ships' bulges, were stored in sealed glass bottles for various periods. Chemical analyses showed percentages of carbon monoxide ranging from 4.56 to 4.57. The constituent of the pump which was responsible for this gas was the hauled barrel oil. In one experiment the gas in a drum which had contained hauled barrel oil and which had been sealed for five months contained 6.23 per cent. of oxygen, 5.58 per cent. of carbon dioxide, and 6.22 percent of carbon monoxide. Thus there was actually more carbon monoxide than oxygen in the atmosphere.

It has been stated that small traces of formal and acetic acid gases have been produced by the decomposition of formal acid, but no traces of carbon monoxide were found in bottles in which formal acid had been stored for various periods at different temperatures. Gardner [4] in 1914 stated that carbon monoxide and carbon dioxide were evolved from drying (overed) of His conclusions were adversely trained by Kline [5], who considered that his technique for detecting rising carbon monoxide was unreliable. However, the presence of carbon monoxide in pump vapours was demonstrated in an entirely independent investigation by King [6], the publication of whose paper was prompted by Kline's critical survey of Gardner's work. As far as we are aware, King's findings have not been challenged. An examination of the technique employed by Newington [2] will show the care taken to eliminate failure.

EXPERIMENTAL EXPERIMENT

[1] A hole was drilled in the bulge of a fishbowl which had not been opened up for six years. Large sample of air was aspirated from the bulge and transferred to a laboratory. By chemical analysis these samples contained 1.4 per cent. of oxygen and 6.22 per cent. of carbon monoxide. When some of this air was bubbled through barium blood and the liquid saturated with the reversed spectroscope, carbon monoxide haemoglobin was demonstrated.

[2] A guinea pig was introduced directly into this atmosphere. The animal collapsed within five seconds and was apparently unconscious. Freely convulsive movements and irregular respiratory efforts continued for ten minutes, the animal then lay motionless though an occasional respiratory kick took place for a further ten minutes. Subsequently a trace of carbon monoxide could be detected in the animal's blood by the reversed, but not by the ordinary, spectroscope.

[3] A second guinea-pig was put in a 6-liter bell jar. The fresh air in

which was slowly and continuously displaced by 12 litres of air from the lungs. After two minutes the animal began to show signs of respiratory distress, after fifteen minutes convulsions developed and the animal collapsed. It was, however, still alive after twenty-five minutes when it was killed and the blood taken for examination. The amount of carbon monoxide in this animal's blood was apparently greater than that found in the first animal. In neither animal was the concentration of carbon monoxide in the blood large enough to have any physiological importance. It is obvious that these animals suffered or died from anaemia, directly due to the small oxygen tension in the air from the lungs.

(4) A 27 gram sample of the same male guinea pig was sealed up in a glass bottle of 1.68 l. capacity for forty days. A mouse was then placed in the bottle. The animal showed no signs of distress but gradually became sluggish and finally unconscious. Death occurred after three and one-half hours. The blood of this mouse was found to be 19.5 per cent saturated with carbon monoxide as estimated by the Harkness or cyanide spectrophotometer.

(5) In another experiment similar in all respects except that 5 grams of guinea were used, the animal died in two and one-half hours and the percentage of saturation was 6.2.

It is obvious that the chief cause of the death of these mice was carbon monoxide poisoning, which may have been accelerated by any gas deficiency.

(6) Three little bottles in which 10, 1.5 and 0.5 gram of guinea had been closed for fifteen days were found to contain 0.27, 0.08 and 0.26 per cent, respectively, of carbon monoxide. Unfortunately the oxygen content was not estimated. But it would seem that under the conditions of experiment there must have been enough oxygen and enough carbon monoxide in the bottles used for the mice to support mouse respiration long enough to enable the animals to detect a fatal concentration of carbon monoxide. According to Henderson and Haggard [4], atmospheres containing an ordinary percentage of oxygen, 21.2 to 22 per cent of carbon monoxide may cause dangerous symptoms to man within an hour and 0.4 per cent will generally be fatal within this time. They also state that 80 per cent of saturation of the blood with carbon monoxide is rapidly fatal. These figures are consistent with the results of the experiments on mice.

CONCLUSION

The sequence of events described in this report is interesting, because a preliminary but erroneous diagnosis of death from carbon monoxide poisoning which was really due to acute anaemia, started an investigation which proved that carbon monoxide was formed from guinea in sealed compartments. However, like all other such compartments we have examined contained carbon monoxide in dangerous quantities only when the amount of oxygen present was too small to support life. Therefore at first sight, it appeared that detection of carbon monoxide in these confined spaces, though of scientific interest, was of little practical import, because a man entering them would always be rapidly smothered long before he had time

uncomplicated form of carbon monoxide poisoning. However, one interesting observation concerning the mechanism of its action is of significance. First it was noticed that following the onset of the poisoning but before the onset of symptoms of carbon monoxide poisoning, the animals showed the same symptoms of the usual asphyxiation phenomenon of the 'anoxal' type associated with asphyxia. Secondly in the 'anoxal' atmosphere some were able to survive three or four hours before dying and since their blood after death was 90 per cent saturated with carbon monoxide, they undoubtedly died from this cause. (The latter circumstance is still a problem in spite of the fact that it is probable that small animals like man can survive in a lower percentage of oxygen than animals as large as man.) It is difficult to provide for the air in confined spaces to remain replaceable, and yet contain a dangerous concentration of carbon monoxide, then these observations become of practical importance. For instance, such a space may be considered safe because it will support the combustion of a safety lamp, whereas in reality there is present a lethal concentration of carbon monoxide.

Two references have received striking confirmation from a recent report of two disasters in the United States Navy [7]. In the first disaster three men were asphyxiated after working in a blister of the U.S.S. *Kearsage* for one and one-half hours. In this case there is no question but that carbon monoxide poisoning was the correct diagnosis. The reason is the *Kearsage* had been using an oxyacetylene torch and the carbon monoxide which was subsequently found by analysis of the air of the compartment was supposed to have been produced by the incomplete combustion of the acetylene, but if the oxygen was turned on during the use of the torch the long-range hypothesis becomes unnecessary. In the second disaster, in the U.S.S. *New York*, nine men suffered an unexplained injury, all were affected within a few minutes with symptoms which, as they first appeared, were more consistent with carbon monoxide poisoning than with oxygen deficiency, and carbon monoxide is reported to have been found in the blood of the three fatal cases. In the *New York* accident the length of time that the victims were exposed to the dangerous atmosphere is estimated. The description of the event shows that at first attempts were made to get the men out without any gas apparatus, secondly, a candle helmet was used and discarded, thirdly, another form of apparatus failed, and finally, a mask and air hose were 'secured from the navy post fire department'. Therefore we think it fair to assume that the shortest attempts at rescue must have occupied at least half an hour before the men were got out of the blister. The length of exposure, combined with the fact that seven out of the nine men were ultimately recovered, again suggests that carbon monoxide was the cause of the disaster. The effects of a lowered oxygen tension would also suggest the action of any carbon monoxide present, and accounts for the appearance of symptoms. The United States reports also suggest no source of origin for the carbon monoxide in the *New York's* blister. These American disasters combined with the present investigation leave little

reasonable doubt that under unknown conditions the action of paint in confined spaces can produce a lethal concentration of carbon monoxide and at the same time leave enough oxygen to support respiration—at least for short periods.

Although no person's complete carbon monoxide has been reported as a product of drying paint fumes, some elements have not been mentioned that the technique used to demonstrate the presence was analogous to that employed in this instance, it is believed for the first time a chemical analysis has been independently confirmed by biological experiments. Moreover the use of the Hartridge respiration spectroscope for the blood examinations excludes the possibility of mistaking such compounds as hydrogen sulphide and other such compounds for carbon monoxide by spectroscopic mistakes which are sometimes made by the ordinary and inexperienced when an ordinary spectroscope is employed.

Finally, from the practical hygienic point of view it would seem that the evolution of carbon monoxide from paint is too slow and the quantity too small to produce acute or chronic symptoms in any circumstances other than a hermetically sealed compartment. In this respect the type of poisoning described above provides an interesting analogy to the chronic arsenicated hydrogen poisoning which was reported in certain instances which had to be prolonged during during the War [3]. It is impossible that the amount of arsenic which was produced from vapors grade of secondary butylene, say more than the traces of carbon monoxide produced by paint, could ever accumulate in sufficient quantity to cause symptoms except in "sealed" compartments.

Summary

The use of some hermetically sealed spaces was found to produce traces of carbon monoxide.

The source of this gas was the boiled linseed oil used by a fine up paint.

The presence of carbon monoxide was demonstrated by chemical and biological methods.

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DR. AUGUSTUS DE SMIT. (1814-1894) NETHERLAND PHYSICIAN

By Young Augustus de Smit, M.D., F.R.S., F.R.C.S., F.R.C.P.

Augustus de Smit, M.D., is reported in the *Nederlandsche Geneeskundige Tijdschrift* (1894) as having been born on September 11, 1814, near Groningen, and died on September 11, 1894, near Groningen. He was reported in *Nederlandsche Geneeskundige Tijdschrift* (1894) as having been born on September 11, 1814, near Groningen, and died on September 11, 1894, near Groningen. He was reported in *Nederlandsche Geneeskundige Tijdschrift* (1894) as having been born on September 11, 1814, near Groningen, and died on September 11, 1894, near Groningen.

After a short stay in the Netherlands, he went to the Cape of Good Hope station, he joined H. M. de Smit, M.D., on Jan. 7, 1844, a ship engaged in painting the East Coast and proceeding to the African shore trade.

John Smith, M.D., had been Assistant Surgeon in the Eastern Cape for many years, and in the spring of 1844, had returned to the Cape.

What kept a few days, the journey which he went to the Western Cape for the period of two years during which he was on the Eastern Cape. This record included as a fish hook in which he presented the detailed description of his medical experience from October 1844, to January, 1847.

The arrangement of the most general remarks and zoological notes is very similar to that of the other.

This manuscript is now in the collection of the National Maritime Museum, Greenwich. Through its files pages may be seen the daily life of a man engaged nearly years ago, and in it can be read the story of the operations of Augustus de Smit, M.D., on the Cape.

In the beginning of January 1844, the ship came out on the East Coast of Africa. The sea in the region of the great Fishhook delta, was a light brown colour from the mud washed out from the river estuary which 'floating on the surface of the sea and meeting a most efficient small' around 'Augustus de Smit's interest.

While the F. M. de Smit was in the collection, the collection was also in the collection. The collection was also in the collection. The collection was also in the collection.

On the evening of January 15, 1844, a young woman named Augustus de Smit was looking with another man alongside the ship at the harbor of Alexandria, when a ship came out from the harbor.

Dr. Augustus de Smit, M.D., had taken every precaution for safety by providing a net and a boat to attend the case.

The captured spider being 'put into the boat, Mr. de Smit, the doctor, Augustus de Smit, M.D., applied a netting over the front and artery which showed the hemorrhage. The man was then brought on board when it was found that very serious injuries had been sustained.

"In the right leg there was a deep, jagged, and a few deep incisions from the teeth of the animal, posteriorly and corresponding to the injury there was an extensive oblique laceration of the soft parts tearing the gastrocnemius and soleus completely through to the deep flexor,

rat becoming so black as to form two black, to red, changing bands on all surface of the animal including under body, which Mr. Knapp described. (The signs are described on page 1) recognized & rat. There were however 2 marks on the anterior and posterior aspects of the right side of the chest of the rat, being enclosed by teeth, while the left side had also some changes in the black space so that a finger could be passed over them. The limbs of the rat were partially deviated and the rat was catheterized, was infected by tooth. In recognition of the three signs a consultation with Mr. David August Surgeon it was determined to immediately amputate through the above the bone the incision posteriorly, of the greater of the rat being so high as not to admit a flap being obtained from them, the operation was successfully performed three hours after the injury, by the anterior and posterior flap method about the position of the bone with the middle third of the thigh, the General Anest. was able secured by Mr. David August Surgeon. It only 3 or 4 ounces of blood was lost, the flap closed of all amputated blood and tightly brought together by three interrupted sutures. It was then placed in a hot and water dressing applied every 48 hours. The above operation was performed under very disadvantageous circumstances being on the Quarter Deck very dark (if not dark), and the horses caused the lander to make considerable the motion of waves.

The wound of the left ankle joint was closed with one or two interrupted sutures, and the limb was placed in position. The patient "knew the operation very well and was given a glass of port wine after it. A lot of rum was frequently given before operation together with a piece of lemon for the water to hold on his teeth, but these details are not mentioned. Loss of blood and shock may have acted as a general anesthetic, while the loss of blood, if it remained in the three hours would have produced some anesthesia in the limb.

Next morning the wound is very shrunken and turgid, and the stump was highly dressed with antiseptic plaster & a small bandage to support the flap. Food was given port wine daily and 1 tablespoon tea.

On the 11th pain appeared and a sanguine note is continued.

On the 12th the patient was re-dressed and on the 13th Surgeon West reported everything "very favorable."

Next day, having completed watering, the ship put to sea and on January 24 the man completed of 4 years in the ship as consequence of the pleasing nature of the vessel, it was having a moderate gale. During the following two business days the ship appeared fairly sailing much faster but it was not possible to discern it all the while when the day was clearer. He together had some sleep but the left ankle had become displaced, and West therefore "placed it in a band of tea with a wetting foot band made by the surgeons.

During the period band was under treatment, the patient was with "a

continued until at Wind and Thunder Storm with terrible lightning and a close wallowing, ship and people. Antony found a feeling may be wrong, and as he lay in bed, with the ship heaved down and an evening temperature which varied between a maximum of 62° F. and a minimum of 51° F. throughout January to 11 January 1841 in the Montserrat Channel. During the night the deck would become lumpy and the convoluted motions and when at morning would cover everything on the ship with mud, as was described by High in his journal of HM's *Heavily* 80 years years before. In spite of Blaker's ventilation system and similar contrivances, only constant vigilance the burning of fires and opening of ports and hatches when the weather permitted, prevented conditions resembling to those which Samuel Pepys found to exist in the King's ships in 1664. As his expectations he found them "wretched to hear and would be told I have with my own hands picked out fleas from the most considerable of them as big as my finger. Even without such conditions must have been depressing enough for the sick men in the dankish space between decks, where the stagnant air was further tainted by the fumes of draughts and the retching and vomiting vomited here. It is not surprising that the patient felt "rather apprehensive of the motion of the ship, especially when sea made elsewhere at this." Heavy seas producing such a pitching motion as to cause the ships to rub against each other and destroy the delicate machinery.

Progress however continued satisfactory, pain being "continually" eased, sleep, but on January 20 the left ankle was so swollen that the surgeon ordered "Hemlock" water, after which found the pain well with hot water and cataplasms of oil. After this the patient slept but later a was "drowsy rather hard and the legs weak with the motion of the ship, so that head was nearly lost from pain and was ordered "go Port now lie."

On the last day of January the stomp was reduced and the legatures came away. Considering they were "at sea in rather stormy weather it looks remarkably well, but next morning, in consequence of the pitching motion caused by heaving up both sides anchoring" swell was once more in much pain. On redressing the stump on February 3, it was found to be healing, but the left ankle now showed a more healing as registered here over the original malodors. On the 6th water dressings were stopped and lin and "white" ointments were applied to it a stump, while the left ankle was treated as before. That day the legatures on the femoral artery and "the large branch of the profunda" suspended. Throughout alternate days were continued until the 12th, but then, the weather has become so bad and the motion of the ship so great that I could not dress the stump until 15 day (the 14th), when I found the motion nearly healed all round and a good motion formed by the legs for the knee. That day Wood banded and dressed a swell almost over the left internal malodors.

The pulse rate was at no time recorded and the temperature was appar-

[illegible]

*Burgess' West did not fulfil the promise of his early days in the Western Country, years after the cattle have increased, when Alexander Cunningham was on the place of Sir William Burgess. There, alone of his year, remained in the Western. Last, which he headed.

On April 1, 1958, he married with the rank of lieutenant, by Order of Congress dated February 22, 1979. At this time more nation years has passed were being presented in "Half" longness over time. In 1967 he had received the General Service Medal, and in 1968, he appears in the Navy List (retired) with the degree of MCJ, for the last time.

He was promoted to Staff Sergeant in June 1974, and died there and a half month later.

Assistant Surgeon John B. Hunt was not promoted to Surgeon, his obituary notice was written in the summer of 1866.

I have pleasure in acknowledging my indebtedness to Professor Geoffrey Callender for drawing my attention to *Surveys West & East*.

[illegible]

THE COURT OF N.W.A. - TAVOULO, AUGUST 1, 1994

Rev. Stephen J. Lipman, D.D., J.D., LL.D., Dean, 1992-1993

Two medical journals of H. H. E. Thompson, which describe the incidents to which the reporting refers, is among the exhibits which have been received.

The return of "Angus M. Jefferson" who kept this record, covers the period December 24, 1971, to June 8, 1972.

Under the date August 1, 1794 all the Vice-Judges made the only

when the clouds were still and the sun shined down upon the
 House. When the clouds were still and the sun shined down upon the
 House.

When the clouds were still and the sun shined down upon the
 House.



Portrait of the Piquet family

When the clouds were still and the sun shined down upon the
 House.

When the clouds were still and the sun shined down upon the

House.

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When the clouds were still and the sun shined down upon the

House.

CLINICAL NOTES

A CASE OF ACUTE BERYTROPHIC LEUKEMIA

In SCHWARTZMAN AND B. SCHLOSSER, MD., M.D. D.C.

AND

Sergeant GEORGE W. B. PARKER, D.C., U.S.

With Remarks by Dr. J. S. FRYER, M.D. H.M.

Cancer Club of the New York Hospital

On August 1, aged 45 reported with on June 15, 1922, a dark greenish (bluish) pain posteriorly in the upper region. The pain, which was (initial) had been reported on June 11.

Previous History.—Telodiplosis posterior (painful), duration 10-15 years when he had reported good health.

On admission to N. Y. Hospital, under on June 15 there was a large painless rash on the abdomen and back part of the chest. The abdomen was hard and rigid palpable and swelling of nodes was made out. Temperature 102° F., pulse 104, respiration 24.

June 16. No pain, spine still painful. Temperature and pulse about the same. Good general.

June 17. No change.

Blood count. White cells 24,000 per c.mm. red cells 4,000,000 per c.mm. hemoglobin 50 per cent. sedimentation 20.

Differential Polymorphs 60 per cent. lymphocytes 16.0 per cent. large mononuclears, 0.50 per cent. eosinophils 24.5 per cent. small cells, 1.0 per cent.

Spine less painful, spine was palpable there was no marked tenderness, and no pain was felt in the chest or back.

June 19. Spine found tenderness. Temperature 100° F., pulse 80, no symptoms 24.

June 19. A few erythrocytes were found on the floor of both lungs. Abdomen not tender. Spine and spine was left but less tenderness noticed in part before the spinal surgery.

Blood count. White cells 24,000 per c.mm. red cells 4,000,000 per c.mm. hemoglobin 50 per cent. sedimentation 20.

Erythrocytes were still high, and there was a few erythrocytes. It was thought that there were erythrocytes with a high, erythrocytes due to pressure from a rib was sent to Dr. Parker for his opinion. In two chronic it was examined by Dr. Vanhook whose differential count was as follows: Neutrophils polymorphs, 60 per cent. eosinophils polymorphs 17.0 per cent. small lymphocytes 10.0 per cent. large lymphocytes 1.0 per cent. mononuclears 24.5 per cent. mononuclears 1.0 per cent. eosinophils 24.5 per cent. small cells 1.0 per cent.

In two systems the condition was partially broken.

June 20. Condition unchanged. The spine and the spine were still present. Reported examination of the spine produced only a single cup of erythrocytes (spine) in the spine. Microscopic negative. The blood analysis in blood culture by day 24 by night. Agglutination negative. In the abdomen liver pump and middle tenderness found in the spine, pump.

June 25. Spine palpable and tender for the first time. Total hemoglobin, 48,000 per c.mm. of which 80 per cent. were eosinophils, about polymorphs or lymphocytes.

1. *Chlorophyll* (total) (mg g⁻¹ FW) = 20.5 (OD₆₆₀ nm) - 1.82 (OD₇₅₀ nm). The general procedure for chlorophyll extraction and analysis (Shankar et al., 1995) was used. Total biomass was measured gravimetrically, of which centrifuged cells formed 90–95%.

Figure 2b shows the total number of individuals in the population. The total population size is 1000 individuals.

Table 3. Pathogen load on soil environmental media. Temperature during incubation periods (24 h), respectively, in lower incubation temperatures. The spleen had recovered from cold pathogen exposure; in the three previous days it had been nearly left.

Floral display	total of flowers	flower size	total pollen	total pollen	total pollen
total of flowers	total of flowers	total of flowers	total of flowers	total of flowers	total of flowers

[illegible]

One more slide is shown on a microscope (1000 \times magnification) and polarized light. The slide is labeled "Dermal papillae in the epidermis." The slide shows a cross-section of the epidermis and dermis. The dermal papillae are the finger-like projections of the dermis into the epidermis. They are labeled "Dermal papillae" and "Epidermis". The slide is labeled "Dermal papillae in the epidermis." The slide shows a cross-section of the epidermis and dermis. The dermal papillae are the finger-like projections of the dermis into the epidermis. They are labeled "Dermal papillae" and "Epidermis".

First, neither Y for — in the past century, though, there was still established support on educational issues and a few officials, but there were no signs of the reformer movements of which he was a champion.

[illegible]

Domov and Domovna in the early stages, as mentioned above, we found the diagnosis of acute leukemias to be, the absence of any risk or low the rapidly changing signs and changing blood picture, such as early mortality, that the case was one of erythroleukemia of a positive type. In the post mortem, the leukemic changes and the failure to find any leukemia confirmed our view, and it was not until we reported it, I must remark, that we realized the importance of studying leukemias. The diagnosis is made from the point of view of the same clinical signs as in the leukemias of the bone and such of the post mortem was not allowed. In the study of the life history of *Trypanosoma* species were not fully appreciated. The blood is not measured for leukemic counts, and assuming that to have a view of leukemias, the stage of development in the marrow had possibly not been reached.

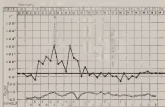
Information was linked to respondents by anonymous identification numbers that were used for coding and analysis. The data were then linked to respondents by pseudonyms; each respondent was then assigned a unique number.

THE EFFECTS OF ANESTHETIC AGENTS ON THE CIRCULATION

By JAMES HARRISON, M.D., and J. H. HARRISON, M.D.

The following case is quoted to illustrate the effect of hypotensive anesthesia on the circulation. The patient was a 35-year-old male, and was a member of the United States Army. He was a member of the United States Army.

On January 20, 1941, at 10:00 a.m., the patient was taken to the operating room for a laparotomy. The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed.



The patient was of a rather slender appearance. The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed.

The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed. The patient was given a general anesthetic, and the operation was performed.

On January 20, 1941, at 10:00 a.m., the patient was taken to the operating room for a laparotomy. The patient was given a general anesthetic, and the operation was performed.

DISCUSSION

DIFFERENCE FROM COAL GAS

BY D. A. COLEMAN, M.B., F.R.S.

FELLOW OF THE ROYAL SOCIETY OF MEDICINE

THE main purpose of my paper is due to the experimental discovery made CO₂ Death from poisoning, by myself and others, in 1895, of the light gas which some people call pure gas because the CO is considerably reduced, and finally because it is a pleasant odour of coal gas given nearly a century of its production. It is a mild odour of pine-wood is treated without water, like the gas which is usually reduced to a neutral. Samples of the Gas Light and Coke Company, which is supplied to the south of gas in doing experiments are a very old account, which is a full and gas for a short while in the hands are where it is made, any more, and to drink milk and soda. The favourable taste of the carbonic acid gas has been a very clear test in previous it seems to be effective. There is some evidence that there was some in a certain degree of respiratory which enables them to maintain a constant rate of coal gas with no would certainly affect gas was reduced to this point, also that these workers show an average temperature greater than 100 and throughout the Company. There is partly, by no question in the company, because CO₂ requires a concentration of 10% per cent. in order to be rapidly fatal, while a concentration of one part per 10,000 can be regarded as a prolonged period in that of effect.

Patients who are known, too, when that, then probably cause acute poisoning. CO poisoning is far more common, though less often fatal, in districts where charcoal fires are in use, and in countries like Turkey, where houses and taverns are heated by charcoal burners. I have seen many more cases of CO poisoning in parts of India, and Persia where no coal gas is used than in London. Since the time of Charles, has become fashionable a low artificial death rate among the poor.

POISONING FROM GAS BURNERS

CO is produced in greatest of its great thing, by incomplete, where power is merely oxygen is then created and momentary action. The chief and most important result is water gas in industrial gases. The idea is to get the heat which makes them gas. Some authorities state that the red gas which are known as the Gasoline, and complete, is perfect, and usually fairly safe, sometimes hazardous. The poison is the most in water and carbon, and burning may also place. Hydrogen, sulphur, carbon, and nitrogen are present in quantities, also, which are especially of the kind I have spoken of and death. Patients who are victims of gas in the house and especially and more for one, and the amount of air, of the low speed water may be reduced.

FURTHER

The first step is properly to remove the patient from the cause, as the matter from the patient. It must take time and but have given to a degree before the patient recovers but this has not always been supported by right passages. Those who have to contraindications first and then on the matter should give concrete and definite rules to use who have a patient poisoned by CO. The following outline is that taught by me:—

Reprinted from THE LANCET, 1900, 25, number 22, 1798, p. 1122. Reprinted with the Author's permission of THE LANCET.

14. *Quantum entanglement* is a quantum mechanical phenomenon, but usually the discussion of it is confined to the framework of quantum theory. It should be noted that the notion of entanglement is not a quantum concept.

1. *Journal of the American Medical Association*, 1997; 277: 1001-1005.

Monotiles are a generalization of [1] and were first considered in the present paper with some other specializations, namely the *balanced* and *aperiodic* (which may mean: the *non-periodic*) conditions. The *balanced* condition is the weaker of the two, since all monotiles already satisfy the *aperiodic* condition, and it is not clear whether or not the latter condition is satisfied by all monotiles.

Review

[illegible]

The second edition of this book, by the late Mr. S. H. Hilditch, had been revised by two colleagues, Mr. S. F. MacNeill-Lewis and Peter Lewis, but these have been made in accordance with the recommendations of the printers and a third revision on the text has been included. The volume deals with most types of *Spargania* as brought in at the London Hospital and presents the subject adequately. The chapters on the very important subject of inheritance of the larval case for recognition should

[illegible][illegible]

²These three alternative versions of the test are presented as supplementary materials, which are available at:

should not follow any operator. It is possible that there are special reasons that are merely two pages too distant to merit comment, the last, of them, are reasonable suggestions, and are probably of interest to some. The results of comparison of the two volumes of letters of the 'unpublished letters' particularly in the quantity of reference to the donor with the recipient are only in the last volume of 1931, as each subsequent one should have shown.

The author's claim that there is no difference is not justifiable in such a broad-based volume, a responsibility book, even though both donor and donee have been grouped, and given details of both donor and donee facts to overcome this difficulty.

The chapter on care and treatment is good. No technical changes are made by any previous preparations. The point the author emphasizes is: 'Do not wait until the patient is dying before trying the serum and then blame it if it does not work.' Large doses given early and repeatedly seems to be the wisdom of serum therapy, but neither and small doses of both in vaccine therapy. The author agrees with most modern writers that emphasis is a much increased danger and can be avoided, in early stages, by the simple provision of good administration than in later stages, and that the treatment of the donor (1931) will about equal a severe allergic reaction.

The chapter on vaccination is short but contains some very fine points and is well worth reading.

The notes at the end of the book of numerous laboratory tests are most convenient and practical, and point out the various ways in which laboratory results may be rendered acceptable and useful by the critical operator not being taken seriously in the words. This appears to be particularly applicable to comparisons of the given serum test. From a surgeon's point of view is a valuable book, which if carefully studied will not only assist him in securing a more accurate diagnosis, but will also materially assist him in bringing his treatment to a successful conclusion.

An admirable argument for even better liaison between the world and the laboratory.

Emergency Surgery. By Hamilton Bailey, F.R.C.S. Eng. Surgeon, Royal Northern Hospital, London. Volume II. Thromb, Spine, Head, Neck, Extremities, to Genital Tract. Winge and Sons, Ltd. London. Winge Medical Ltd. 1931. Pp. xiv + 415. With 120 illustrations, some of which are in colour. Price 7/6 net.

From the appearance of the first volume of "Emergency Surgery," the publisher has the reason for its success with an apparent result, now that the volume has appeared, should seriously not be ignored.

The work covers a very wide field and deals with emergencies not only due to injuries but also with those urgent conditions which may arise during the course of acute diseases. The author gives the results of his wide experience, and has done him of experience which will not in every case meet with general approval, but it is with of this divergence it would appear to be of more value to the less experienced surgeon to have a definite line of treatment pointed out to him, though it were to be admitted that some of the procedures would require special knowledge.

The results and technique of the more recent investigations are incorporated in their appropriate instances. It is to be noted that where dealing with urgent complications, only a few statements are, designed to give a good historical background, are omitted. The chapter on diagnosis of the blood is important and useful, the most helpful in making a correct diagnosis and understanding that line of treatment which will give the best results and avoid much of the unnecessary suffering and ripping which are not less common in these cases.

Did that which cannot be subject to experiment, which is, the reader in a more or less satisfactory manner, some of the more bibliography in the end, and a list of authors relating to the subject, and the observations have been fully stated.

The complete work should not only be a welcome addition to surgical literature, but should fulfil the author's hope that it should "serve those who have to carry out surgical treatment."

Physiology, Anatomy, and the Diseases of the Heart. By Sir James Mackenzie, M.D., F.R.C.P., Physician, Royal General Hospital, Leeds, Assistant Physician, Royal General Hospital, Leeds, and Lecturer, L.R.S.D. and L.R.C.P. London: H. K. Lewis and Co. Ltd. Pp. 114, with 12 illustrations. Price 6s. 6d.

This book is the outcome of experience over a series of years gained by the study of some of the most able of every century. But limited time has been especially interrupted along various lines with a more or less complete view of the history of the heart and its diseases and the treatment of the heart. An attempt is made to present a hypothesis as to the nature of the disease. The use of the book is a practical one, being a description of the symptoms and methods based by the author to be of most use in the treatment of the most serious disease.

Chapter II gives a general picture of the disease. It describes the disease as a "case of the heart" with a disease from the heart and its treatment and the treatment of the heart, and the treatment of the heart, and the treatment of the heart.

A list of the symptoms is appended as a summary of the symptoms and signs of the disease, and the treatment of the disease, and the treatment of the disease, and the treatment of the disease.

Chapter III deals with the treatment of the disease. Here the author makes reference to the facts which were gained by experience to be most likely to give positive results and those which are difficult to perform in a laboratory with ordinary apparatus, and the treatment of the disease, and the treatment of the disease.

The chapters are divided into sections and parts, and the treatment of the disease, and the treatment of the disease, and the treatment of the disease, and the treatment of the disease.

Chapter IV contains an account of a series of different varieties of heart with history, treatment, and the results of treatment. There is also a list of the facts and the results of treatment.

In the last book of 114 pages there is a series of valuable facts, a large amount of useful information concerning the principles and treatment of the heart, and the treatment of the heart, and the treatment of the heart, and the treatment of the heart.

The treatment of the heart is given in a series of chapters, and the treatment of the heart, and the treatment of the heart, and the treatment of the heart, and the treatment of the heart.

Physiology, Anatomy, and the Diseases of the Heart. By Sir James Mackenzie, M.D., F.R.C.P., Physician, Royal General Hospital, Leeds, Assistant Physician, Royal General Hospital, Leeds, and Lecturer, L.R.S.D. and L.R.C.P. London: H. K. Lewis and Co. Ltd. Pp. 114, with 12 illustrations. Price 6s. 6d.

The work of writing and carrying on the well known handbook of medicine has been most successfully continued by Dr. Mackenzie, a former colleague of Dr. Mackenzie who has brought the book up to date with many alterations and

Textbook of General Physics (Russian Language Series for United Nations) [1961] by V. V. Vasyugov. Moscow: Moscow State University Press, 1961. Pp. viii + 70. 150 rubles.

Students' general knowledge of elementary mathematics such as limits, the theory of functions, etc., is often inadequate for the study of physics. The author's aim is to help them by presenting a series of chapters which he feels are the most difficult to understand and to present them in a more logical and systematic manner. However, the author is not a physicist. His ideas are vague, and he is not so clear and thorough as a physicist would be. It is a pity that the author's selection for the subject is so poor.

Thermodynamics (Russian Language Series for United Nations) [1961] by V. V. Vasyugov. Moscow: Moscow State University Press, 1961. Pp. viii + 100. 150 rubles.

This is a good textbook for a general introduction to thermodynamics. It is a good book for the student of physics, and it will be found useful for the student of engineering. The author's treatment is very good, and the presentation of the subject is very clear. The author's selection for the subject is very good.

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NAVAL MEDICAL COMPASSIONATE FUND **Account of Receipts and Payments for the year ending December 31, 1933.**

	<u>£</u>	<u>s</u>	<u>d</u>	<u>£</u>	<u>s</u>	<u>d</u>
Balance carried over, January 1, 1933						
Received from the Admiralty	24	0	0			
Anglo-American	250	0	0			
				274	0	0
Grants made and personal contributions						
Bank	252	0	0			
Received from the Admiralty						
Bank	50	10	0			
Received from the Admiralty	10	0	0			
Received from the Admiralty						
Bank	20	0	11			
				274	10	11
Received from the Admiralty						
Bank				25	0	0
Received from the Admiralty						
Bank	1	0	0			
Received from the Admiralty	250	0	0			
Received from the Admiralty	5	0	0			
				274	10	11
				274	14	0

1. The sum of £ 274 14 0 has been received from the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty.

2. The sum of £ 274 14 0 has been received from the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty.

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	<u>£</u>	<u>s</u>	<u>d</u>
Amount in Disbursements and Warrants			
Grants made and personal contributions			
Bank	252	0	0
Received from the Admiralty			
Bank	50	10	0
Received from the Admiralty	10	0	0
Received from the Admiralty			
Bank	20	0	11
	274	10	11
Received from the Admiralty			
Bank	25	0	0
Received from the Admiralty			
Bank	1	0	0
Received from the Admiralty	250	0	0
Received from the Admiralty	5	0	0
	274	10	11
	274	14	0

6. The sum of £ 274 14 0 has been received from the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty and the sum of £ 274 14 0 has been paid to the Admiralty.

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Journal
of the
Royal Naval Medical Service.

Original Article

DEEP-SEA DIVING¹

By THE LIEUTENANT LIEUT. F. R. N.

AND

LIEUTENANT COMMANDER A. L. PHILLIPS, R.N.

ROBERT DALL, after receiving the air pump, immediately retired to his chamber (D.H.) and observed the bubble of gas set free on the rise of the vapor. He suggested that bubbles so set free might stop the capillary flow.

Some fifty years later Halden conceived a diving-bell station for shallow work, and a helmet which he used for getting out of the bell.

It was not till 1881 that Duggan Taylor, repeating the experiment of Boyle and observing bubbles of gas set free in the blood vessels of a rabbit, gave a correct explanation of the cause of "bends" sickness which had resulted from submarine work at greater depths.

The experimental proof was finally given by Paul Bert in "Les Pressions Atmosphériques" (1888). He found that bubbles appear in the blood when decompression is too rapid in relation to the temperature and its duration. These bubbles, by interfering with the circulation in one or other part cause "bends, paralysis, and even death." Bert's work was, however, not recognized in this country by naval surgeons or their medical officers.

In ALLEN's "System of Medicine" (1844) Lieut. Allen's diving gale was explained in the mechanical effect of pressure on the circulation. It was not realized that the human body is permeably compressible and that changes of atmosphere, pressures are equally borne by, and is unconnected to

¹ The greater part of this article, for all the help of 12 pages read before the United Service Club, on the Royal Society of the British Association (1891) and is incorporated by permission from the "Royal Naval Medical Service" 1891-1892.

all parts of the body. Although the birds, placed in a completely air-tight chamber, suffered little or no difficulty in maintaining life, by compressing them, pressure of 4 sq. ins. (4 atmospheres) was sustained in the lungs, instead of the normal 15 sq. ins.

In 1903 Leonard Hill discovered, by accident, that by enclosing an animal tightly compressed in a cylinder, by air, with a manometer to control blood pressure, and then rapidly raising and lowering the pressure to 15 lb. per square inch, no significant pathological change appeared in the blood. Therefore he enclosed a dog in a small cylinder fitted with a glass window at either end, and by means of the dog, used the inside of the window as first when alternately by 15 lb. to keep the circulation in the capillary vessels and he observed with the aid of a low-powered microscope.

Originally, during the process, by 15 to 20 atmospheres no changes registered in the even flow of blood along these delicate vessels. The normal air pressure caused an increased volume of air in the blood and, of course, in accordance with the law of partial pressures, but some oxygen is carried by carrying the dissolved gas from the lungs to the tissues and returns it.

After keeping a dog in highly compressed air for some time and then rapidly decompressing the animal, bubbles of gas were seen to appear in the capillaries and stop the circulation. On recompressing the bubbles again observed to shrink until the circulation became re-established. The cause and cure of compressed air sickness could thus be proposed as a transmission on the screen.

Major Greenwood and Leonard Hill in 1910, after preliminary observations, in one day and another subjected themselves to compressed air in a chamber provided by Mr. E. H. Davis, of Baker, Gorman and Co., Ltd. The highest pressure reached was 93 lb. per square inch (7 atmospheres absolute). It was shown that during ascent, he cannot rely solely on a deposit of 100 ft. The method of decompression used was a uniform gas about twenty minutes being given by each atmosphere.

Soon after the publication of these experiments, the steps method of decompression was put forward by J. S. Haldane, designed to lessen the amount of variation of these matters with the slow rate of ascension and reduction the highest impedance compatible with safety for the escape of dissolved nitrogen from the blood into the lungs.

Analysis has shown that the gas set free by too rapid a decompression is mostly nitrogen, and that while the water tissues, when saturated, hold about 1 per cent. of nitrogen for each atmosphere of pressure, the fat dissolves a 10 to 1 per cent. and is therefore a great source of danger to workers in compressed air.

It has been pointed out by Leonard Hill that a great source of danger during decompression is the expansion of the gas which is swallowed or forced by fermentation in the alimentary canal.

the gas burned with the dense O_2 gas at a height of 100 ft. over the decompression pressure. A 2 ft. spiral of decompressing O_2 gas surrounded the gas. Besides, the gas under pressure was gas-jacketed and the explosion risk was reduced, which is correct for the decompression stage.

Thomas and Gifford had a great deal of work during 1910-1911, to do from a decompression risk which was relatively safe for some time. It was, then, first safe to take breathers should be taken from deep during and that a diver should be tried to be free from decompression risk in the past.

The Tables of Decompression used by the Admiralty were compiled by the 1907 Committee based on experiments on guinea-pigs conducted by J. S. Haldane, A. E. Boycott and G. O. C. Dumas and have been used successfully.

The use of oxygen for hastening decompression suggested by Paul Bert, was tested by Leonard Hill in 1912. He measured the amount of nitrogen simply dissolved in the serum which he passed, (1) when exposed to compressed air (2) when breathing oxygen in the chamber at the same pressure. The results showed that breathing of oxygen rapidly eliminated the nitrogen dissolved in the serum which came of course from the blood circulating through the lungs.

In collaboration with Mr. R. E. Davis there was designed, before the Great War, a satisfactory chamber for divers to enter and be decompressed in. The use of oxygen breathing within this chamber was proposed. Observations of Haldane had shown that it was safe for man to breathe oxygen at 30 lb. pressure (2 atmospheres absolute) for thirty minutes. A longer time than this at shorter times at higher pressures, were dangerous owing to the fact that extraneous air produced by waste oxygen poisoning.

It had also been shown by Leonard Smith that prolonged exposure to concentrations of oxygen even at only one atmosphere of pressure (about 100) produced poisoning.

The experiments made by Paul Bert and Leonard Hill on animals and by Boycott on men showed, however, that there was no danger in breathing oxygen during decompression in the stages described here + 30 lb.

As the depth of breathing and the rate of circulation can be greatly increased by exercise. Major Greenwood and Leonard Hill had used this means of increasing the safety of decompression in their own case.

In the Hudson Tunnel, Jupp arranged for the decompression in take place in stages and gradual had to be waited over and steps checked by the men between the stages. He reduced the period set for the decompression table by one-half and the men then increased oxygen with very little adverse consequence—a most significant result tested upon more than 1000 of working shifts of many individual men.

It was evident then in 1912 that the basic given in the Admiralty

the many observations made to be done and preparations made for the drive in the ordinary suit to complete rapidly any slack work, such as requires the use of the hands.

In the months preceding the first diving tests, Mr. R. H. Davis arranged for Captain D. C. G. Duggan, R.N. (Retd.) to calculate a table-plate new suit of decompression tables up to 300 ft. depth, on J. V. Haldane's system, taking into consideration two groups of tissues, depending on different rates, and allowing for the accelerating effect of oxygen breathed from a certain point in the decompression table. Mr. R. H. Davis placed the experimental plant and other facilities at the disposal of the Admiralty for the purpose, and several hundred tests of these tables were made on guinea pigs in the course of which it was found necessary to increase the safety factor largely the system of calculating concerning the same. Eventually a selected decompression, arranged which had been thoroughly tested, over the range in which one man went to drive and the success of the deep-water trials about to be done had been largely due to this careful and systematic preparatory work.

WHAT KNOWLEDGE HAVE WE GAINED IN THE WORK OF THE LAST THREE YEARS?

Investigations are still proceeding and much work remains to be done, but it is considered that sufficient knowledge has been gained to permit preparations to be made for the routine working of a propulsion of our divers for deep sea work. It is hoped that later deep sea-diving machines will be attached to our principal basis of home and abroad.

The use of oxygen-breathing during decompression and the use of the D.N.D.C. have made diving more safe and the time spent during decompression more comfortable.

Diving and working at a depth of 300 ft. is a rather easy, in both safe and practicable. Actually one of our divers has reached a depth of 300 ft. and come to the surface as you and I would return from an afternoon walk.

The use of oxygen breathing during decompression has effected a saving of time which is about of the total time spent in decompression, a valuable gain both from the point of view of the diver and the others in charge of the salvage.

Exposure of animals to 15 lb. pressure of oxygen soon led to asphyxiation, and the quicker the pressure rose the quicker was the case.

No case of oxygen poisoning has occurred among the divers. They state that when they dive, when they climb only for D.N.D.C. and consume breathing oxygen, they feel very refreshed. The increased concentration of oxygen may account for their feeling of fatigue on the bottom, when when breathing nitroxylene, or at a depth of 300 ft. they are exposed to two atmospheres of oxygen.

crossed 120 on completion and showed nothing (Hillman 1931, 1932). The post-test rate in twenty minutes.

This dose after the test, was found to give the same loaded with allison. When the test was repeated and allison was loaded instead of air, allison could be detected. The test was tried on thirty-seven times in six months and the answer was always the same in the case of this dose. Blood-splashing tests suggested that this was a case of functional allisonism.

Some other cases suffering from the complaint have had similar tests carried out on them, and in every case the absence of allison was demonstrated by the use of various combinations of allison.

Another test employed which is not in general use was a special allison test, which was a modification of a similar test described by a Japanese worker. The test consisted of placing small strips of blotting paper, treated with iodine solution and mounted on plaster on the palm of the hand, while a control strip is placed on the other near the wrist.

The test relies on the assumption that a red string of allison is due to normal excitement or pain and is not due to heat. The result was considered positive if the strip left on the palm was about twice as pronounced as the stain made by the control. The test gave moderately accurate results.

VALUE OF CURRENT MEDICAL DATA AND PHYSICAL OBSERVATION

The trials have afforded an opportunity for extensive and continuous application of certain tests. Further they were useful in supplying what must be regarded as something approaching the optimum figures for the tests for when with the various medical and physical examinations and the results from they had, it would be difficult to secure a more healthy body of men.

At the initial medical examination a very large number of tests were applied, not so much as a means for the selection of the individuals for the diving light as the allison of the test for separating the successful from unsuccessful divers, and in order to obtain the information, blood-pressure, pulse response tests, allison tests, balance tests, and allison tests, and vital capacity tests were applied daily both before and immediately after diving.

As it is to be expected, daily variations were always present and varied during different times of the day, but they were slight.

Towards the end of each diving week, blood-pressure were on the up-grade and vital capacity falling—all very slightly. The lung mechanics generally restored the levels to par, but the same tendency could be observed at the end of the three months diving season especially as regards the blood pressure. Incidentally, there was a slight hypoxaemia showed the latter season.

The attack being representative of a wide hydrostatic system, when the diver may be called upon during full lighting conditions. With regard to the 10 centimeter test, common to the usual experiments, the holders of the head record, by the aid placed the head down to hold out under tolerable conditions.

With our knowledge of the nature of mercury at 10 mm. for 2 mm. (Hess and his phenomena). The three cylindrical would not possess of uniformity in achieving these figures, but the pressure of uniformity on the bottom were strictly limited. Psychologically he was not so visible and it may have been something in the distance which hampered him when diving. The diver had five attacks of "bends", and because of this had to be removed from the deep sea diving test.

Very little difference could be detected in the figures obtained before and after diving. One noticeable after effect of diving was an almost overwhelming inclination for a nap as soon as two days diving. This tendency was not due other component in the experimental chamber to the *Acetone* (Gardner).

The head condition of the diver, when working and at rest on the bottom of the sea was studied by means of a microphone head over the top of the head which was connected through the diver's helmet to an amplifying set on the surface, and to a loud speaker or headphones. It could be connected to a telephone on the deck of an *Automobile* office.

By means of the device it was found that a diver, when performing a piece of work on the bottom had an increased pulse rate of only five beats per minute. The usual increase is attributed to the resistance of oxygen, for the diver was breathing air with oxygen the equivalent to two atmospheres of pressure.

Another device is intended to measure the respiratory rate of the diver. It consists of an electric bell which is raised the diver which is connected through to the surface to four electric bells. The device was arranged that, at rest, bell 1 lights an inspection and down an inspection, under working conditions bell 2 and 3 are illuminated depending on the depth of respiration, bell 4 means maximum respiration.

ON RECOVERY FROM A DIVE OF WORK AT 100 ft.

The diver is at 10 and after 10 min. then when he went down. After after diver has reached the same, and after statements are substantiated by the records. To quote an actual case at random. Head pressure before diving, 125 and 19, after, 115 and 85. Forty centimeter test before diving, column held suspended for 1.5 seconds, pulse rate per 5 seconds, 1 8-1 5, 7, 8, 8 after diving, column held suspended for 1.5 seconds, pulse rate 1 8 8 8, 8, 7. Pulse rate rising before dive, 11, after the dive, 71. Pulse response test before diving (pulse on completion, 118) at the end of one minute "U" after diving, 104 and 89. Total capacity before diving, 0.450 after diving, just the same.

Changes in Lung's Position in Deep Diving

Since the 19th century, the position of the liver constantly has shifted less rapidly and in a more highly controlled and regular manner.

The degree of descent of the liver is reported to have greatly approached that of the stomach but has been estimated.

Carbon dioxide exposure standards were 1 per cent in the blood at the surface and a partial pressure of 10 per cent at 300 ft. We had no real case of the disease.

Slight attacks of pulmonary may be represented on the basis of the liver in the chest cavity—on one or two patients found—to be due to the liver descending too rapidly and by not equating the pressure of air in the middle with the water in the chest cavity.

One died in 1943 unfortunately died from complications following an attack of carbon monoxide. Psychological conditions probably in his described probably played a considerable part in the production of this disease.

The common disease encountered in deep sea diving is in every degree from the form described in the shallow diving or near work and it cannot be too strongly stressed that the case for a soldier caused in something as shallow as deep diving is the same that in immediate and adequate compensation. No matter how serious the case of decompression is properly caused but the treatment should be the same.

Even when decompression is greatly at fault, decompression will save the case—especially in that in which the D.V.D. is used for the diver is under observation and treatment greatly facilitated. This was in deep diving but had severe cases of "bends" that in an extremely painful condition of carbon dioxide caused by a bubble in a many forms in some cases.

These cases were all caused by a decompression pattern of a few pounds of these cases, the occurred in the same way. It has been observed that some individuals more prone to disease than others. The degree of descent of the liver to the disease, as has already been stated has been estimated producing him from further deep diving.

It seemed to us that these "bends" were more liable to occur on deep days than on the surface, it is evident that when divers suffer from a similar life after effort, that these bends always associated with wet weather. For cases occurring after leaving the D.V.D. a large decompression chamber was available.

Support breathing was carried out during decompression and here as in decompression, an approximate saving of time was effected. The decompression chamber is comfortable. The diver has one or two standpipes and one outside in reading or work during the lengthy process of decompression.

During the 1944 season, when working, or in many instances resting, at 270 to 300 ft. some of the divers experienced what we then were

was an anti-aircraft gun (this was a very early model) directed by a machine, and it was said that Jack Burke is which is an unusual 1000000 ft. diving. It is a very good example of a diving up of the ground in a diving.

As all the divers went a stage further than this, but when they got out of the depths they stated that they had "passed out" when on the bottom. (Yikes, I guess they at this time as it could not have been the first, but that had occurred by then telephone the instructions they were, and the diving.)

Following divers, it is said that they had experienced a detached feeling. (We) it was very much on one side. Another diver said when asked to understand was diving —

"I was when the ship went although it may not be better, the light is comfort and company. You really change more of them is nothing to do, but I comfort from seeing the fish it takes you out of everything else.

Two divers also had patches loss of memory. One man's statement is more a history of state of nervous of mind, but it is a valuable statement as it shows that in 1930 a state of nervous existed, in state of the divers in any way. However in 1931 we failed to get any evidence of its existence.

Another diver stated that he "came over losing" in deep water, and said "You got lapped up in deep water" he also had some difficulty in remembering the work he had done.

When asked for a description an old hand at diving gave the following account. "You have to be made mental in deep water in deep water you know that you are underwater. He described how you think of each hour, as you start a quarter. He said "If you go down with a real purpose it becomes an obstacle it will become the main thing and you will forget everything else. He described how he thinks very deliberately, he says, "I have finished my job what shall I do next?"—of course I have finished and now I must go up." He described how he was aware of every minute. "If my head goes out I think of my head going out. He gave the following as an analogy: "If I have a thing of value, my half a crown, in the street, I would pick it up. Down below I would look at it and think, 'What is that, shall I pick it up?' Yes I will pick it up, and then I feel my head go out.

The latest account is that the last description of how most of the divers felt in 1936 when between 275 to 300 ft. Some felt it less, others more.

With two exceptions all the divers looked and felt it when they returned to the surface. The exceptions were white head and "nausea" when they came out of the B.S.D.C. These two were regarded as considerable for further deep diving.

There were in which the divers had given had to be asked, and others asked to describe what could be the cause of their loss of memory. Sir Leonard Hill who had noticed symptoms in the 1930 divers was of the opinion that the cause was mental and not physical.

The National Long-Term Research Panel for and returned the results of the National Long-Term Panel on Aging to the research community. By getting these results to you, NIA is providing the results.

Using questionnaire data, the respondents (the respondents' first priority) in the management of a company that is faced with a crisis, and it is noted that the respondents are mostly people with a high level of education, that is, they are mostly people with a high level of education, that is, they are mostly people with a high level of education.

As a result of this experiment, it might appear that there are exceptions. The three very large flows appear to be of the same type, but the three large ones from the direct, shallow, and near the bottom of the depression, on the bottom, have made both the direct flow from

With these few bits of information, the committee, through the power of memory, the third except as noted only that it was difficult to find answers, the same method which had worked with the answers from the employees, but the evidence is purely circumstantial, and the fact is that the same three were permitted to continue to work, and on the same basis, tried to get more successful than had before, but without success.

The following is an account of three fishes brought in at the surface, looking bloated and "sunk," and recovered from further deep diving. The first out of the three, which was the one from the Galapagos mentioned as unknown, had then within its stomach 15 lb. of fish.

The information was derived from (1) news, general interest, and editorial information; (2) past one-way (radio) material; (3) the past 10 days; (4) the news; and (5) past one-way to current (1 month) information (radio) (radio) (radio).

The detailed account which the officer gave about his inability to recall confusion warranted the assumption that, for that the first time he noticed something in his own psychology, the days witnessed the following:

* "I don't like to assure attention; nor would I like to go down into a meeting which I did not believe I would find that someone was waiting for me; I would rather go home, my dear brother, and be afraid of doing the wrong thing, I often have, the feeling of being suspended in air, as one when in charge of a strange man. I like your work and I am afraid sometimes worry about what others think of me."

As a child, he devoted his father's (money) not to the person which affected his dream, he said -

"I never remember being afraid of the dark but I have always been afraid of confined spaces. I got a feeling of being, with it, in those places."

The latter (his own words) came on last week, dying with others, he found himself at the bottom of the young people collected.

He was sent, as a child, down into the sea, and worse than he has met there, and although he has passed his remaining years, he does not believe out of his depth.

After the first few minutes of drifting, gradually, the oil loss of being closed no more took so long in Standard air and I did not worried me for a while but it came on then some just before I went off-on the bottom that started it up and I have had it ever since. He then proceeded to describe his deep diving as followed in 1940.

"I left duty at 180 ft. and at 170 ft. I felt just like being in a tight space. It felt like going under water, I think that is what made me think of going unconscious. I had a feeling of being closed in and went off. I did not tell them what I have told you I just said that I had been unconscious. On that occasion I felt tingling in my limbs and I thought that the heavy pressure was crushing me into my suit. I thought that if ever I got out of this I'd never dive again. After that I cranked off deep diving, but I thought it over and afterwards wanted to be allowed to carry on. The description of his last dive, which was at 300 ft., was as follows:—

"I felt the ladder determined to get to the bottom. At 250 ft. I got a recurrence of the tingling and a feeling of going on my back. I decided to rest a couple of minutes and then go on. I did 20 ft. and felt I was going unconscious. I made signals to be pulled up and kept repeating them. I lost the use of my limbs and let go everything. While hanging on to the steel rope I saw my own face in the front glass. It was outside the glass and looked all greenish. I was dressed in my three-piece suit. I heard the order, 'Pull the diver up. again and again, as if someone in the boat was saying it. When I got to the D.D.D. I did not appreciate the oxygen as usual. I wanted death."

At the interview with Dr. Colpoe in London, he was placed on a couch, with blanket open and directed to go over the account 'as if it was happening now.' With some crying he repeated the performance, and seemed to recall the whole of the period for which he had claimed to be unconscious.

At one stage of the narrative he cried out: "Pull me up, for God's sake pull me up. I feel as if I'd never get up. I'm dead on the bottom, my mouthpiece is caught under my nose. It is getting lighter now, I can see the chamber."

Then he was made to sit up and tell the story again. This time he gazed straight ahead and talked as if he was still going through his experience, and he was able to add a few details to the first account. "I felt that I was being pulled up against resistance as if a fellow was trying to hold me down. I saw feet up and went to get out—worried because I can't open my hip joint. I came to take two minutes trying to open it."

In the talk which followed he agreed that several conditions had had forgotten had now come back to him.

It was decided that the driver and the other who had been under suspicion were not sufficiently stable for further deep-sea diving. It was arranged that an interview designed to look for symptoms should be

attended on the medical examination: a day—on drove on H.M. 4. Knott told that those passed the H.M. further examination by Dr Colpen. In that way, it was hoped to include those with mental instability, and thus to prevent the loss of memory which had occurred notably the 1939 season.

The driver for the 1931 season was examined and passed as free from symptoms, although the tooth was only present after examination between Dr Colpen and myself.

The first auto driver did not experience anything of an abnormal nature, and no loss of memory or very often unusual sensation was noted during the driving session. Most of them, however, did, when in the experimental condition at Broom, Notts, Chatterton's, in an unpressure equivalent to a depth of 500 ft. experience a momentary pithiness. If they were reading the print became blurred for a moment. This sensation was not reported as burdensome when working at 300 ft.

The tooth, or suspended drive, developed its acute characteristics after seven weeks driving when he was at a depth of 375 ft.

He is of the supplest nervous type and is one who belatedly expresses self-control: the latter statement, he has developed to a considerable degree. The other drivers also wrote told me that he was rather inclined to "go off the handle" unexpectedly, and that he much disliked being the first driver to go down to an exposed depth or to be the first driver of the day. On the day that he broke down he was the first driver to go down.

He is only partially conscious of his own nervousness. For instance he does not like going into the workshop, if he is in a situation where he has a feeling of being watched, and more important, he was frightened of the dark as a child, and even now is very frightened of darkness, nothing would induce him to put a horse.

In reply to the questions as to control of his mental excitation, he admitted "I often think of where I come from, but I could not tell of it or they would think I am going down for no reason."

A history such as this, would seem to point to mental instability, but apart from these possibilities—and they are—no certain of them are produced by history of us—he appeared to have a very capable temperament, and the leading factor in accepting him was his splendid physique.

During the chamber tests at Telford, Chatterton's, he gave a strong positive reaction to the mental variability test, but he stated that he had not felt anything unusual. After the breakdown he confessed that he had felt queer on consciousness. When asked if the feeling had been similar to that immediately preceding his breakdown, he said "You cannot possibly compare the two conditions: in London, in the chamber, it was light and there were others with me; on the bottom it is dark and lonely."

While he was driving in Telford, he was kept under a close medical observation as possible without causing suspicion.

On one occasion his pulse rate on the bottom was much too high for the

around on the floor until I felt it was about 10 ft. in a water bucket. I took the front glass off, and the bucket was followed. While on the bottom I thought it would be absolutely good to have the bucket off, but when it was off I didn't feel as I have before.

I told them that everything was O.K. because physically I was alright, and upon my return of a 100 observations came into play. But taking it off would I just forget, and I couldn't display the usual content of his first I had done on previous occasions.

From that onwards I felt as my well thought.

When he reached on the upper deck, he was on the verge of a complete mental breakdown. To keep his mind temporarily off the subject he was sent on shore with five of his fellow divers and given a full dose of alcohol.

The danger to his case, was that he would attempt to suppress the incident and integrate it in his subconscious mind. To avoid this I persuaded him that night to record verbally his experiences on the bottom.

Practically no hypnotic effect was required to produce the scenes of that morning's dive, and the picture of stark and horror which even the interview could produce, left an impression which is very difficult to describe. The impression was of sitting on the deck and watching the entry of a Grand Guignol. It took a push did he across his emotions that he showed him how to receive the imaginary face glass and how he defines which he cannot be his doing now.

The production of any reaction produces an extraordinary result as the subject's body is almost formless, and it was so in this case. From the onwards the dive was focused and he was enabled to talk to the others of his experience, previously he had refused to talk on the subject.

From the incident which happened on board, two shallow water divers were reported as being nearly. In each case I found the same to be characteristic. One who was terribly particular about his air supply, in a boy had nearly been suffocated by a pillow and pillow light, and over seas had been terrified about not getting enough air.

To sum up briefly. These four failures in deep diving and the two in shallow diving have many points in common, they are all the suppressed nervous type who habitually exercise control—thy, reason and self contained. They work best on their own and do not wish observation. They are usually of a phlegmatic, rather than a practical disposition.

The most desirable method of selection to avoid the mental instability is a matter of opinion but my experience suggests that for the present such a state of mental instability might as well be done from deep diving.

Some advocate a very complete psychological analysis which professing to rely on a very complete history of the diver from his boyhood, coupled with close observation by contractors and others, such observations being minutely recorded.

The latter method depends on skilled and accurate observations which must be carefully recorded, but when the observer and observations are

known. This is the method par excellence. By changing of these experiments the method of collecting facts, but the scientific principles remain, and we made in the former month of what appeared an accurate forecast by an expert after careful study of the facts then available. It took a great number of years to make these measurements, viz. nearly the distance and landmass which may be encountered on the bottom of the sea. We may add, in conclusion, that both distances and landmass are now largely indicated by powerful arrangements of sound telephones and observation chambers.

TRISTAN DA CUNHA VISIT OF H.M.S. CHALLENGER—
JANUARY, 1901

By Surgeon Commander J. A. KEE RN

THE Tristan group is situated 1,500 miles from Cape Town, half way across to Europe Africa and slightly to the northward. It consists of five islands, including Nightingale, Inaccessible and Tristan da Cunha the latter of which is the only one in habitation.

Tristan itself is approximately circular and has an area of twenty-two square miles. It is an enormous mass rising almost sheer from the sea. The cliffs vary in height from 1,000 to 2,000 ft. and the mountain above them rises to 7,000 ft. On the top of the mountain there is an extinct crater filled with fresh water to which bathing may be had provided one has the hardihood to get there, but the going is very difficult and the mountain dangerous except under the guidance of one of the residents.

The island was first occupied during the captivity of Napoleon at St. Helena; garriots were established at St. Helena and Tristan da Cunha so that these lonely islands might be used as bases for his release. When the garriots were abandoned, and the port of St. Helena proved safe with one or two others and was allowed to decay. After a few years there were visited the captain of a passing merchant vessel to bring these messages from St. Helena to her at home, and then the lonely captain occasionally did so his last visit, though what reward or compensation he could have received for doing so is not known.

This is the origin of the present messengers and accounts for the maintenance of other well marked and varied to the people especially to the others.

For the following information I am indebted to Surgeon Lieutenant, Commander D. W. G. A. Surgeon Surgeon Lieutenant C. H. Evans and Mr. James H. A. Moore, L.D.S., of Cape Town who by their kind work during forty eight hours spent on the island have rendered possible a very complete account of the medical, dental and general conditions of the inhabitants.

The island was sighted at 11.30 p.m. on January 1. The weather was

and the general appearance of the island suggested that the natives would be able to make the trip, but the natives were found to be unable to do so, owing to the fact that the natives had no boats and the natives had no means of making the trip.

The fact that the natives had no boats and the natives had no means of making the trip was a serious obstacle to the natives.

It was not a serious obstacle, but the natives had no boats and the natives had no means of making the trip. It was not a serious obstacle, but the natives had no boats and the natives had no means of making the trip.

The natives had no boats and the natives had no means of making the trip. The natives had no boats and the natives had no means of making the trip.



FIG. 1. View of Tanna from ship.

On the following morning landing at the settlement was still impossible, and it was decided to land the stores and the medical and dental party at the beach above mentioned. The surf was very heavy and the ship's boats could not be brought ashore. The boats were unclipped, each boat being started by means of an oar and the stores and personnel were disembarked from the natives and whalers as the island boats got outside the thick belt of seaweed (kelp) which runs round the coast. The beach is a small one consisting entirely of black sand and is situated near Sandy Point, about two miles to the east of the settlement. The stores had to be left here until a favorable opportunity might occur for transporting them by sea and indeed were still high and dry when the ship left two days later. There is no isolation or shelter nearer than the settlement, and land transport is impossible except on the isolated and exposed part of the island.

The gulls, like the sandpipers, were in the same way, the common effect of the large numbers of birds in the air. The sandpipers, like the gulls, were in the same way, the common effect of the large numbers of birds in the air. The gulls, like the sandpipers, were in the same way, the common effect of the large numbers of birds in the air. The sandpipers, like the gulls, were in the same way, the common effect of the large numbers of birds in the air.

The Gull was a very common bird, seen in all directions. They were mostly at the shore and were flying around, but were not in



Fig. 1. Gull in flight.

all disturbed by the presence of the gulls. They were in the air in all directions. They were mostly at the shore and were flying around, but were not in

After we had completed about fifty miles we took a halt at the shore of a narrow, grassy river, with a bank rising steeply to the north. The sandpipers appeared to be in the air in all directions. They were mostly at the shore and were flying around, but were not in

We had now fully lost a better boat and had a small boat with the prospect of spending it in the same manner. It was a small boat with the prospect of spending it in the same manner. It was a small boat with the prospect of spending it in the same manner.

off again when needed, as always a doubtful quantity at Texeira and may be impossible for that island.

We could not here, walked back to our starting point on the beach, saw nothing but the ship from there.

The boat was pulled after several hours at the very moment that a squall, and had been made by the gale and took us off with considerable difficulty. One of the party, a gentleman who had come on the trip in connection with a Cape Town society organized in the harbor of Tyne, had been stung of a mackerel caught. Attempting to enter a boat from the surf at the wrong instant, he took a heavy fall and was totally immersed. From the other boat, now lying off for taking purposes, it seemed as though he might be hurt or drowned, but he emerged without injury. A large shark was swimming at the time at very close range.

The island boats are constructed in their way. There are at present two large ones (20 ft.) and several smaller ones for light work in calm weather. They are built entirely of canvas stretched on a framework of wood, and seemed to me to be wonderful sea boats. They are used for taking to the transport or wood cut on distant parts of the coast and for the principal trade (25 miles) to Inamanga Island. We thought that the handling of these flat craft consisted with more in the use of such a coast was little short of amazing.

They had already come round from the settlement to the ship, and had come back to take us. We were then picked out of the surf and were pulled for two hours in a heavy sea, loaded with help, the shores were strongly and considerably persons of endurance. Each boat pulls eight men with four men to act as oars and each carried four passengers and some small cargo in the way of food. As, in better in the ship.

The men told us that the boats had well of the course can be kept well pointed, the bulk of canvas and paint on, they indicate of their main difference.

We eventually reached the settlement and found that the weather having moderated, the ship had come round from Sandy Point. The Deputy of St Helena came on board and a party of telegraphists and engineers had already come ashore.

We had been landed at Sandy Point in order to reach the settlement quickly and to proceed with our work without delay.

The first move on landing was to establish our tent camp beds and gear in the high schoolhouse where we proposed to spend the night. This was cheerfully done by some of the men, who carried the gear some few hundred yards along a little path over a grassy level to the settlement.

The heads of houses were then asked to meet in the schoolhouse for discussion of the proposed measures and also to be informed of a general meeting to be held in the church on the following afternoon when it was hoped that some conversation might take place in regard to the future of the school.

IN THE MORNING EARLY IN THE AFTERNOON, I, JAMES J. HARRISON, TOWN CLERK, was embarked on Cape Town with a very strong steamer sent to the people. He was able to get the people scattered by roughness without hesitation or delay, so that a large amount of work was effected. He arrived back in the forty-eight hours of our stay.

Before going further I may say that the statements of the heads of families and the unanimous opinion of the whole population were to the same effect, namely, that they did not want to leave the island, that they were quite happy and that they would not go.

In accordance with the Congress's orders, it was pointed out that with the steady increase of population the island would in time become unable to support them. Also in view of world poverty, the comparatively small supply of stores grown on this ocean by the charitable, and brought to them by H. M. S. Carleton, would probably cover any contribution of the island. Also, a warship would not visit there again for perhaps many years. They understood all this perfectly well but as one young man put it in his own way, 'these things were would not save for what there was still plenty of room for increase of stock and cultivated land, and he just didn't want to go.'

The settlement is situated on a green slope at the northern corner of the island and exposed to the strong prevailing winds. It was built Edinburgh by its founders. The houses are built along the sea with three gables each, facing the direction of the wind, thus permitting the sea breeze to blow in its face. Considering the few implements and rough materials possessed by the islanders, their construction is admirable. They are built of rough brown stone, dressed by means of axes, the plane of stones being supplied by a constant supply of water which is sent to sea quite hot. The stone is soft and can be handled fairly readily. The windward sides of the roofs are thatched with that and the less exposed sides by straw, the two being joined by sticks of wood at the top. The houses are only for a narrow width owing to the limited length of the beams and rafters obtained from the island trees which form the only timber on the island.

As on the occasion of a marriage or for other reasons, an agreement of a house becomes necessary, a segment of one or two houses is added to the end and so houses have ever more than three. The houses have broad doors and glazed windows, and seemed to be as a fine class of people. The furniture is plain and primitive but is adequate. The beds are good and some rooms have long wooden tables which take the place of sofas. The fireplace are chosen for purposes of cooking and warmth. The rooms seemed well used and not stuffy. These occupied by us were reminiscent of cottages or laborers' cottages in some parts of Great Britain. The construction of the island is defective but, an attempt has been made to introduce the highest system of building in its nature, and a school has been well built with a clean wall, a good door and a window easily made of a cheap article. As, however, the teacher is occupied on the

is almost completely sterile, with a thin coat of desking water, therefore no lettuce! This is to be feared that some members use the open country for purposes of sanitation.

The water is almost certainly contaminated; the streams are polluted not only by human excreta, but also with dirt, sheep excreta, droppings and eggs. We took a supply of sheep's excreta, and looked the island over, where obliged to use it. The water is rich in fish and should be perfect if kept properly clean; perhaps a water filter, as it is I had went west to Cape Town for analysis; the water is the source of a small stream (4 inches diameter) and is the prevalent on the island.

The food supply was investigated as closely as possible. The heads of houses, when questioned, stated that sheep they had had had been some and two years they had never been actually before the human eye. While milk was never plentiful there was generally enough for the children and the sick. In this respect it is interesting to note that the labourers are not so much milk as the human child or man, and there give rise to a distinct milk-sickness of potatoes and fish. Infants in nursing is practically nil.

The people were extremely well fed on the occasion and there was no signs whatever of malnutrition. The staple food consists of potatoes, of which an especially good crop is expected this year. The plants are treated by means from sheep, which are milked each night for this purpose. Fish is plentiful in rivers and is excellent in quality. Five fowls, stock and other varieties being caught in abundance. A small sheep was killed at a camp one week and our party (except natives) having tasted most excellent ration.

Mollusks are numerous on the island and the young ones are said to be plentiful. The eggs of the mollusks and the young are collected during the season (mollusks gathered in September, the season lasting only four weeks). In order to preserve the supply on the island, the men are sent five miles to the neighbouring island of Inamurua and collect their stock from there. The women were intelligent and brought.

The present condition of the cattle and sheep is good and the pasture excellent, and we were told that there is room for a considerable increase of stock. The more milked milk and a specimen of their milk was brought to Cape Town for analysis.

As regards the staple crop of potatoes, it is stated that more land is available for cultivation as the population increases. The following are the numbers of the stock for food (excepted) for us compared with those obtained by the Government in February 1906:—

	Jan. 1906	February 1906
Cattle	100	100
Sheep	100	100
Goats	10	10
Pigs	100	100
Poultry	100	100
Fish	100	100
Bees	100	100

Notes: (a) The sheep having 100

Game and food, used as transportation and the many thousands of natives loaded for hours. The supply magazines, containing powder and cartridges in vast, small but not of good quality. A number of well-mounted men in the upper ends of their dand and one that with several villages (the first of these are one) where a reservation is made. A few cartridges, sometimes, to the men.

Barrel is now common, potatoes, being the place. The coffee, which, can only be obtained on the rare visits of ships. The most I have to write. Tobacco is rare and highly prized and it is understood that the natives smoke the dried leaves of a bush grown on the island.

Transport, as mentioned above, consists chiefly of the boats. Boatsmen are used for transport from the beach to the settlement and from the points



FIG. 1. Native children.



FIG. 2. Native children.

photo. As they are still ignorant of the use of the boat, they are also seen and make the transportation, which with small wooden rafts, and speckled wheels, and the other things, it is not a thing which is made down by the great tide, and.

The labor of the natives, however, is not the same. The women seem to be good housewives and they are very busy. They spin their own wool and knit with a comb. They are very busy, and also do the most important work on the island. They appeared to me to be in almost total isolation, to the same. They were seen in the fields and on the sea and on heads of the island, but they were of rough work. There is no current, as the island.

Certain matters, such as the transportation, commercial and for the general use, which has the five hundred inhabitants has not been by their means, but the latter had to be necessary, as they had to be

negatives. The appearance of a woman there appeared to be quite foreign to me, the American.

The present population consists of thirty natives and twenty-three Americans and is divided into seven families—the Glasons, Greens, Hughes, Langanathes, Richters, Rogers and Youngs. They are naturally very much interested and an equal influence is recognized between one and another. There is no definite form of government. The oldest male resident, Samuel Young, aged 79 years, is said to regard himself as head in the community, but no one else appeared to be prepared to admit the fact. We believe that any official voice made by the clergyman or missionary was not by the boards for the Propagation of the Gospel as regarded as binding for the time being. The last missionary on his arrival in 1908 established a system of judicial court in which disagreements were tried by the local families (i.e., all interested) and a final quality of checking, the meeting laws passed by Island Parliament called for stopping as punishment. The judge of the court (the missionary) decides on the number of lashes, generally twenty to thirty, and reflects the punishment personally. The wages consist of one strip of muslin 2 ft. long and 1 in. wide. There is very little commercial work on the island. As regards ownership of property the land itself, like is worn on the hands of some families that of others, and we may say in passing that some are closer to their habits and of a slightly higher type than the rest. In the clearing out of stores brought by visiting ships, within five minutes we received for communal use, and the remainder such as clothing and provisions, served out according to the number of children in the family.

The whole population, old and young, seemed to us to be happy, contented with their lot and deeply attached to the island. They are naturally anxious that visiting ships should bring them stores, but the stores they wish for are mainly materials for their houses, i.e., mats, wood, canvas and paint for their boats—ropes, fishing lines, umbrellas, and glass for their windows, etc. They do not ask for luxuries, magazines and papers and neither materials of civilization are not wanted and should not be sent. The nearest market would be West, and the nearest store to contact themselves with an occasional glance at such books as they possess.

I was prepared to find these people a race of uneducated luggers, but we have all concluded that previous reports to this effect are quite wrong. During our whole stay I was asked for two pans-full of tobacco by men with whom I was chatting in the house. We gave away tobacco and cigarettes freely but there was not a hint to the effect that these things were wanted, although there had been no tobacco on the island for some months. They were very ready to give us any help, accommodations or provisions that we required.

They spent slowly in a drawing and rather pleasant dialect peculiar to themselves. Many of them answer questions readily and are not lacking in intelligence and sense of humor. They are actually highly competent in their concrete things, completely at home in their own

however, might be proved, suggesting in my mind, his knowledge of such matters. The relation between the two men was, therefore, as he told me, not a correspondence in fact, but a common knowledge and he told quite clearly.

Beyond this, there appears to be no trace of organic disease on the island, the people give no account of particular attacks of what they think is malaria, but rather the possibility of a few febrile attacks caused by wet and cold. Clinically, the temperature never fell appeared to be quite clear. The only fairly marked signs of leishmaniasis but no abnormal physical signs could be seen.

There was no evidence of pulmonary or other tuberculosis. Malignant disease, carcinoma of any kind was not found in any case.



Fig. 1. Beach scene.

It is only during the night that if present is known from events in the men, raised in some way to the water while leaving the boats up the beach or engaging to other boats later. I had seen only two old houses on the island, and have of course, a difficulty in operation.

One man suffered from chronic appendicitis and was obliged to move away from the island, then to another for operation.

The men are more than 1000 and women, and generally of a fair physical type. The women are all well as far as health goes, some of them quite stoutly and the children are particularly good, being strong, well controlled and generally well used for. Clinicians raised a good deal, some individuals were very clean and others decidedly dirty, a few children had lice on their heads but it must be pointed out that all the common people well with the standard of many British villages and very well indeed with the hospital class of patient in a big town.

Dental caries is present, but the cariesles are not, as I think, as would be difficult to find any other cariesopathy in the world. The incisors, pearly, and this is typical of the type that not one of them has ever found in his own teeth. Another peculiar feature is that the incisors of hypophosphatemia mentioned in the literature occur in the only two of the individuals who are Marfanian. One, born in Germany, was deformed in the hand and settled there, the other was born in Cape Verde. The children of these two people born in the island and living the island life are dentally perfect. Nearly every child examined has a serious amount of tartar, which in many cases has set up a localized pyorrhea, but this would clear up with washing. The teeth are strong and well formed, of a pearly color, have the roots and are well attached, and so hypophosphatemia of the teeth was not. The hypophosphatemia was negligible, extending laterally, being the maximum. A large proportion of the people have an edge-to-edge bite, and there was no view of open bite. The molars and premolars were well formed and curved, no trace of arches as chronic stomatitis were seen.

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[illegible]

Every over-stuffed map "harvested" and the schools are warned at twelve to fifteen months. No diseases are noted and no cases of chronic infection were noted.

DOI: 10.1002/for

Pink Food—Pink is the new white in the category and is now staple food. In the winter they occasionally have beef or chicken, but it is rather a luxury.

which occupied an intermediate position and (3) front teeth in Class II which occupied the lower position. The majority belonged to the 3rd class.

Other interesting features brought to light by the dental examination are relative to regularity and oral hygiene. It was observed during examination that the teeth of the Indians were generally superior to those of the Chinese.

It was observed that the degree of regularity and the standard of oral hygiene depended mostly, but that under both heads regularity and oral hygiene, the Indians are superior to the Chinese.

From these findings one is led to infer that good teeth and regularity are closely related, and that bad teeth are positively productive of irregularity. Thus there is something contributory to a higher standard of oral

As shipped condition	With tooth brush	After tooth brush	After tooth brush
Percent irregularities (%)	Percent irregularities (%)	Percent irregularities (%)	Percent irregularities (%)
Class I	100	100	100
Class II	100	100	100
Class III	100	100	100
Class IV	100	100	100
Class V	100	100	100
Class VI	100	100	100
Class VII	100	100	100
Class VIII	100	100	100
Class IX	100	100	100
Class X	100	100	100
Class XI	100	100	100
Class XII	100	100	100
Class XIII	100	100	100
Class XIV	100	100	100
Class XV	100	100	100
Class XVI	100	100	100
Class XVII	100	100	100
Class XVIII	100	100	100
Class XIX	100	100	100
Class XX	100	100	100
Class XXI	100	100	100
Class XXII	100	100	100
Class XXIII	100	100	100
Class XXIV	100	100	100
Class XXV	100	100	100
Class XXVI	100	100	100
Class XXVII	100	100	100
Class XXVIII	100	100	100
Class XXIX	100	100	100
Class XXX	100	100	100

hygiene in the Indians—probably the fact which will be discussed later—and that a neglected state of oral hygiene is generally associated with (1) not the cause of, dental cases, although it predisposes to procedure.

One ordinary respiratory power in the teeth of the Indians was demonstrated by the following observations: Teeth which had been broken off about by accident sometimes almost break with the cause, exposing both dentine and pulp, but healed ones and remained healthy after more or less of time to two years. Was this due to the high standard of oral hygiene in the Indians?

It is interesting to observe also that the common method of cleaning the mouth and polishing the teeth in the Indians is by means of tea leaves and a hard wood stick followed by a rinse of water. It is not always particular about the source of the water provided it is fit for drinking purposes. This operation is carried out once a day with her morning ablutions. The Chinese, on the other hand, if he sees anything at all similar to the use of a toothbrush but he does not take the same pride in his 'toothbrush' as

does the Indian. When he can afford it the Chinese is very fond of gold snuff and sometimes gold ornaments in an otherwise healthy mouth which so soon is detrimental to his teeth and productive of pyorrhea.

With regard to the standard of dental efficiency in the child I have only been able to produce some illustrative examples. These show 73 per cent of Indian children and 76 per cent of Chinese children with various teeth, while among the few mothers who submitted to examination the percentages were 50 and 54 per cent respectively, but 100 per cent in Siam-look Chinese mothers, one of whom had dentures.

Now in these circumstances are they lost out the findings of Mr. Manning at the Malayan school-child and they were supported by observations made during tours of inquiry in other Eastern countries.

As regards the causes of dental disease among the children attending our clinic, I was convinced in my own mind that the "delinquents" pointing to the palace of the school-child, were directly responsible, the source of which was both the local shops and the travelling hawkers. These delinquents provide the form of "ice balls" (preserved washed and) cheap confectionery; penny and yeast biscuits made from wheat refined flour, for which Chinese mothers had a special predilection. I was convinced, moreover, that neither parental conditions nor climatic delinquency played any conspicuous part in the process, but that it was the direct effect of refined confectionery, its stickiness and fermentable properties. It does not seem possible to explain the occurrence of dental disease in the Chinese child on the various shortage theory of Professor and Miss Molloy. The children were comparatively well nourished, played and bathed in the sun in the gardens why should they suddenly begin to suffer from various delinquency? There is no evidence of any sudden change in the dietary in the mother. In the Indian especially, the diet has been little influenced by confined reformatory, whose food is not one of their weaknesses and they are a hot particular one which contains most of the germ. The real truth appeared to be that the parents, among our laborers, living in comparatively luxury with good wages, were able to indulge their children in Western food and refreshments for which the child quickly acquires a taste.

The story of the introduction of sugar and flour into the diet and the separate themselves our own history is told in a previous chapter. Penny sweets came first in the Far East. The subjects of labor, and their is discussed later on.

In conclusion, with a subject of such world-wide importance as dental disease no field of inquiry should be left unexplored. It seems to me that the laborer has played despite of civilization after the highest possible order for the solution of the tangled mass underlying dental disease and the means of preventing it.

Fourth, *Palate Power, &c.*—The most common complaint included under this head is sore throat, and it is less common and of a much milder type in the Asiatic than in the European.

Diarrhoea.—Here we have the first evidence of diarrhoea directed up the length of a disease that is extremely common in the Europeans—it is that probably the most common single cause of death¹⁰⁰. It would appear to be even more common in Indians and Chinese (Hobartown) than on board ship.

Dysentery of the Stomach.—Dysentery does occur in the Arctic. It is common also among Chinese on plantations in America, but even in Indians living and working under the same conditions. Tinned foods are in great demand among Chinese.

Dysentery of Intestine.—I have already referred to the influence of local climates, which is high in the Arctic and is invariably associated with diarrhoea of a mild type.

It should be mentioned also that the configuration of the Arctic, particularly the Indian, is not what would be described by that name in the European. The Indians get situated where he has a long two millionth of a day.

In the Naval returns, the following is a summary of the diseases included under "Dysentery of Intestine":—

Cholera and dysentery	57 per cent.
Cholera, dysentery, typhoid, and other enteric fevers	38
Typhoid disease	5

Aggravated 75 per cent. Fatalities 200 deaths, 35 per cent. of total.

Dysentery is a constant addition to the diseases recorded under the head "Intestines" and "enteric fevers" since only persons come with the use of ships, but the Arctic climate, rather than neither of them complete.

Diarrhoea.—Diarrhoea is almost ten times more common in the European than in the Arctic. This is interesting in view of the fact taken to exclude the effect of Arctic climate. The tendency to develop diarrhoea would appear to be much greater in the European than in the Arctic. 4 months' rest and peace are probably required to determine the cause of intestinal disturbance was not met with in the Arctic in eight years' experience.

Dysentery of the Rectum and Colon.—The material under this head is even greater than under the last. The difference in duration, rates, further times occur in the Naval personnel, indicates the simpler character of the disease in the Arctic.

In the Naval personnel the cases are made up as follows:—

Diarrhoea	40
Diarrhoea, dysentery, cholera, typhoid, and other enteric fevers	59

Dysentery of the Liver and other Diseases of the Digestive System.—Here are included two groups of diseases, neither of which are of much importance in the Arctic. In the Naval personnel the data in addition to post-mortem,

several serious surgical diseases, such as duodenitis, liver disease, gall-stones, as well as neoplasms of the liver.

In summarizing up the results of the contrast in the health of the digestive tract as between East and West, it might be said that there is evidence of "more disorderly work and less" in the European which is shown in the *Amoebæ*. It affects the whole intestinal canal from the stomach to the anus, involving the teeth, the portal circulation and the large digestive glands. The diseases of the liver personnel are diseases of the civil population and of ordered men generally. It is not surgical diseases alone that call for explanation, but all the diseases of the digestive tract including dental disease.

Diseases of the Skin—This paper in the *Amoebæ* is generally from life in a definite sunny climate, whereas in the European it would often appear to be the outcome of due to only slight lesions or irritation.

In the Naval personnel, 35 per cent. of the diseases of the skin are attributable to sunburn, whereas the other 15 per cent. is so-called "constitutional" condition. It might be more accurate to say that they were an expression of an unhealthy condition of the blood, and for their treatment, skin specialists would appear to be using more and more the drastic methods rather than to internal and external medication with drugs.

Some of the outstanding features of skin disease in the *Amoebæ* are as follows:—

Skin disease generally is less common. Sunburn disease is less common and transmits generally to a definite cause affecting for the most part the extremities which are exposed to trauma. Rapid healing occurs when the cause is removed, except where other causes of ill-health are present, such as are indicated by a positive *Amoebæ* test, chronic malaria or anaemia. The most common form of skin disease was ulcerated legs, severe varicose ulcers, but generally the touch of lesions which had been first treated with some active treatment and consequently are common. Many of these ulcers alone healed rapidly under N & H cream in the absence of a positive *Amoebæ* test. Buds were rare, carbuncles still more so. Wounds healed with extraordinary rapidity, and conservative treatment of incised and fractured wounds was attended with remarkable results, even the risk of sepsis in compound fractures appeared to be very much less. The general impression from the study of skin disease in the *Amoebæ* is that it is a greatly uncommon in the European, who is much less exposed to the causes productive of skin disease in the *Amoebæ*, whose responsive powers both for injury and disease are very much less.

Circulation is therefore in some way responsible for a higher incidence of skin diseases in the European.

Diseases of the Organs of Excretion—The relative importance of the diseases belonging to this category in *Amoebæ* and Naval personnel is best indicated by the *Amoebæ* in the diseases rates where the two rates are practically the same.

With a few minor exceptions these all represented a relatively heavy of rheumatism, headache or neuritis, and their incidence was limited to the Indian laborers. There was scarcely a definite case, such as long exposure to tropical sun, while employed on hard labor. The attack was acute while it lasted but it rarely showed signs of chronicity. There were none of the more serious types of chronic rheumatism or of rheumatoid arthritis as met with in the Europeans. The immunity of the Chicanos to rheumatism was attributed to his more robust physique and stronger constitution, caused by hard work under all conditions.

Although on the feet, and on the feet it was rarely seen in the Indians. Deformities of the feet were extremely rare, probably due to the fact that he does not wear shoes. Occasionally a man was seen with double thumbs, or double great toes.

Diseases of Nutrition and Metabolism.—If my interpretation of etiology is correct this group should also include the two previous groups, diseases of the skin and of organs of locomotion. As a whole it provides a very small contribution to the total but is the European, but a very important one in the Indian. At the same time diabetes would appear to be a disease of greater importance in the European and population than it is in the Navel personnel.

Dr. Leonard Hagerman, in his statement analysis of causes of death from the post-mortem records of the hospital at Culiacan, notes that while diabetes is rare in hospital records representing poor patients, it is quite a common disease among the well to do Indians.

Therefore the summary presented here, which shows the Indian with double the incidence rate of the Navel personnel for this disease. I would still classify it among the diseases of excess as opposed to the diseases of deficiency. There is a corresponding decrease of this group in the Indian, but as it takes no place in the pathology of the European it need not be discussed here.

The Respiratory Group.—This is a particularly interesting group. To find that respiratory disease is much less prevalent in the Indian than in the European is only what one would expect.

Under the heading *Croup*, the common cold was not the type with which we are familiar at home, bronchitis, slight fever and cough were the symptoms, a run of the nature of tracheitis and there was no coryza. Its maximum duration was about four days but more often from two to three. However, was the same disease only slightly more severe, also less contagious than the home variety, and I attributed this to the healthy condition of the nose and throat to which reference has already been made. There were no deaths; this is interesting in connection with the history of the epidemic disease in the Indian. Specific cases of the epidemic influenza disease occurred at rare intervals and never showed any signs of becoming epidemic. In fact they showed no evidence of infectivity except among children, in whom we had one mild outbreak of measles.

— Except for three cases during the initial staff of deaths which appeared to be cases were transmitted, and there were no cases in other communities. The only explanation of this change in distribution of cases in the Asota in which conditions for their dissemination in general was very favourable appeared to be a healthy mesophages which acquired the virus. It was not possible to believe that it is a community moved and sleeping in close together with every case closed, that a previously acquired immunity was the explanation. The following notes on the initial outbreak of measles appear worthy of record:—

The primary source of infection was never traced. The school closed on all the time and only some out of fifty school children contracted the disease. The school was a mixed one, but all the Chinese escaped. There were at that time about 240 children at the time.

Despite the closure of hospitals upon the disease was typical measles. The type was milder and milder than was considerable rough in some cases, but the average temperature ran to 101° F., and the rash was typical. Every case closed up without a complication in ten days. Parents did not take the disease seriously, apparently they were familiar with it. The outbreak suggests a case of dengue, but that was not the case as every case was treated most carefully.

Fluency shows nearly the same rate of incidence in the Asota and European, and no connection was ever traced between fluency and tuberculosis in the Asota.

Parasitological control went to another as a cause of death in the Asota, and was responsible for almost the same number of deaths. Quite a number of our personnel cases were the subjects of old or recently contracted malaria.

Influenza, on the other hand, was a rare disease among our Indians, and no comparatively high incidence of nearly 10 per 1,000 was attributed due to a small outbreak that occurred in the spring of 1931. A few remarks on the outbreak are worthy of mention. The disease was very prevalent in Singapore at the time. All the hospitals were full and greatly overcrowded because so many of the personnel had contracted it. The type was quite severe with considerable fever. When the first cases appeared among the Indian populations were made to deal with as outbreaks on a large scale, but these proved unnecessary. Only 120 cases developed among 1,000 to 1,500 natives whose housing appeared to be favourable for its dissemination and yet it remained localized. Again, cases were only seen in one case, and the symptoms resembled those of simple measles described above, the headache fever and cough being slightly more severe. On this occasion also the Chinese escaped completely. Here again the healthy zone and threat of the disease appeared to be the first line of defense.

Tuberculosis.—This showed a lower incidence rate in the Indians than in the Malay personnel, and the type of the disease showed very high

delivered from the chest with an the left. Several specimens of among the "active" with positive reaction, and should have been subject of epidemic vaccination had not been removed as a patient. Two cases who were returned to duty apparently cured, are worthy of notice. The first, an Indian who had been registered as leprosy and not reported to live, returned a year later to a new colony and was joined by. Careful treatment failed to reveal any evidence of the disease. The second, a Chinaman, was sent to Singapore in Singapore with a view to travelling with trading and signs of active tubercle of lungs. He was sent back to us in three months, being, having also made a good recovery. Both cases had tubercle found on the system of chest. Our experience before the numerous accepted also regarding tubercle as primary cause. In my opinion, that only applies under certain or other adverse conditions.

Disease of Ear and Nose.—Of the disease, of ear in the Malay peninsula, 50 per cent are attributable to middle ear disease, which is true in secondary to infection of the upper respiratory tract. In the disease, on the other hand, diseases of the external ear—eczema and other external conditions—proliferate. Here again, I think we can see the influence of a healthy atmosphere, and too, especially relevant rate.

General Disease.—Venereal disease was not a serious disease in our colonies here in Singapore, although the other Eastern were Singapore has an evil reputation for the Kiangsu in the region. Considering these numbers, venereal disease was most prevalent amongst the 50th police force, who are also the money-lenders and carriers, and have most time on their hands.

The average laborer who wanted to return his job had little time for medical practice, and there was little opportunity, as the only illness in the neighborhood had been removed to a instance of modern work. We had reason to believe that very few infected persons escaped our notice.

The few instances of gonorrhea as compared with the Malays to suggest that the proportion is small, but again as low as. Possibly gonorrhea is a rather disease in the climate. The only people observed was epidemics, and even that was rare. Gonorrhea was common in some parts.

A NEW CHIEF OF THE BUREAU, AND MEMBERS OF DEPARTMENT OF THE SECRET OF GOVERNMENT

In order to understand why the disease laborer escape and maintain a high standard of health—when the means of these environmental diseases, malaria and hook worm, are kept in abeyance—i. low order as his life very are necessary.

His duty status and moral basis (referring to the Indian) are as follows:—

7. Breakfast—consists of 1 egg, 1 slice of toast and 1/2 cup of sweet cream milk (see table).

11.20 a. m.—He has called one of the day labor boys called him to work, returned home at 11.45. He consists of a very stout, well developed vegetable and fatter man than a few, with a few red eggs or fish, which gives a slight change daily. On average, there are two servings of dairy. No coffee and no refreshment. The man is brown, with white.

1.15 p. m.—The man at 11.50 a. m., periodically with a banana, but the Indian Indian boy from. He takes it where he can get it off the line.

7.45 p. m.—Second and last meal of the day at the end of a day's work. The same meal 11.30 a. m.

He has no tablets between meals.

The value of this diet is well over 3,000, so that it is ample in one respect and shows the average for the Indian laborer who eats something, is his earnings and when out of work manages to live on very small sums. I had frequent occasion to note the physical improvement of our laborer on this average regimen with beef, canned tomato. His hours of work are eight hours per day and constant, which he appreciates because it means an increase of wages, a better ration and a little bit extra for his family and for saving. He is happy and contented at his work and at home from worry. He appears to appreciate the simple measures provided. Contentment is at least a contributory factor to good health. His sleep is the slumber of honest toil and a weary body, and he can even be down and out at night during any short sleep before working hours.

A special word is necessary with regard to his dental hygiene. The regularity of the Indian after his morning cup of tea proved a source of no the simple sanitary accommodations provided, and promises that he is made for him at all work places during working hours. Any lack of this regularity is once caused him to come to hospital for treatment. Of all the diseases the pharyngitis is the most popular and the most useful for all the digestive troubles of the Indian was cancer of the throat. Hygiene is doubtless one of the most important attributes of a healthy digestive system and good health generally. It is noteworthy that 40 per cent. of the more serious diseases of the digestive system in the United States, namely gastric ulcer and appendicitis, occurred among the ordinary workers, domestic and clerical, but their class of disease was rare when compared with the prevalence in the European.

With regard to dental hygiene, the standard was entirely high and not dependent upon external conditions of cleaning the mouth. A little wash-up on the finger was employed once daily as a guide for the very little mouth. The practice of tooth and chewing, even among the Indian women, is changing the appearance of the teeth of many Indians. It is also the cause of gingivitis and of pyorrhea and is even associated with cancer, although no case of it was ever seen in our labor force.

body, here we have an object lesson as to the meaning of the simple life which means a healthy life.—I noticed last week that women with hard manual labour in constant bodily stress work in the open air maintain the health of the organs supporting heart and circulation, the effects of crowded sleeping quarters. A healthy nose and throat is an outstanding feature in the physical make-up of the female. It must mean the absence of the cancer, and it precludes the organ complications of respiratory disease, middle ear disease, etc. The specific infectious diseases appear to lose their infective properties in an Eastern community living in a healthy environment.

I maintain, therefore, that there are good biological reasons underlying the health standard of the female Indians, and they serve to throw into relief the defects of our civilized environment—the crowding in towns, our sedentary and voluntary occupations, and our refined and congested history.

The health standard of the female serves to emphasize the following statements by Professor Sir Leonard Hill on "Some of the beneficial effects of exercise" and yet contra the potential pathology that underlies the sedentary habit combined with a diet that is not only in excess of our physical requirements but one that is otherwise rich and refined. "Physical exercise promotes increased blood flow in and the supply of oxygen to all parts of the body, and increased fluid exchange between the tissues and the blood and the hastening of the removal of waste products. It promotes the metabolism and production of body heat, increases the body output and causes better absorption and utilization of the food, so that the body's own kept up, and free from excessive internal decomposition and toxic products arising therefrom. Thus the moving power of the whole body is focused, and the mental functions kept in good condition. The lungs are benefited by the deep breathing resulting from exercise, the ample pulmonary circulation with the crisp elastic form and flow of lymph through the respiratory membrane; the skin by the increased circulation promoting the evaporation from and flow of lymph through it. The circulation of the blood brought about by exercise, freedom of joints and bones is increased, heat from products of digestion is retained, the blood forming organs the red marrow and the blood being benefited and necessary to retention kept up."

My then comes a biological concept of the foundations of health. Diseases must have its origin in defective foundations. They might be described safely side as follows:—

Diet foundations

1. Food Quantity—Sufficient for the physiological needs of the body without excess, in other words it balance against it each nutrient food intake and work done.

Quality—Food from nature without refinement or concentration

Bed foundations

Food as source of physiological needs

Food refined and concentrated

Concentration precludes to excess refinement leads to excess and deficiency and lack of balance

Digestive Diseases of Stomach: Stomach.—The percentage incidence cannot exactly the same in the two years under consideration, but there are one or two factors which must be taken into account in a true estimation of the incidence of this condition.

The first of these considerations is dental treatment. In 1911, dental care and treatment was practically absent as compared with 1912. It is true that attempts at these establishments in 1911 received dental treatment, but such treatment was practically entirely for the results of oral sepsis or dental decay.

In 1912 ratings were estimated by dental officers as a constant, the treatment being more largely preventive than curative.

The effect of this change of degree of dental treatment cannot be estimated accurately as to far as its effect on digestive disturbance is concerned.

Some indication of the change in dental care and treatment can be obtained from records in "The Health of the Navy" for 1911 and 1912.

	1911	1912
Total cases	107,450	86,110
Total diseases—Dental conditions	501	—
Total ill days and nights	Not published in detail	—
Number of teeth extracted	—	74,000
Number of cases treated (principally)	—	70,000
Number of amputations	—	50,000

Yet the dental service has not reached its percentage importance as in digestive diseases of the stomach as in dental decay.

The second consideration is alcoholism.

It is well known throughout the Service that this condition has markedly improved. "The Health of the Navy" 1911 and 1912, shows a diagnosis of alcoholism in 45 cases = 0.04 per cent in 1911, and in 33 cases = 0.037 per cent in 1912.

It is true that the diagnosis of alcoholism does not include those cases of digestive disturbance which are due to alcoholic excess, not amounting to a degree to which a diagnosis of alcoholism is possible, yet it is probable that these cases bear approximately the same relationship in the two years under consideration as do the cases of alcoholism. If this is so then in 1912 there should be half the percentage number of cases of digestive disturbance from this cause that there were in 1911, yet there has been no percentage improvement in digestive diseases of the stomach.

In spite of this work, I believe it will be accepted that the improvement in dental prophylaxis and treatment and in the limited reduction in alcoholism in all its degrees must have influenced the incidence of digestive disturbance to a very great extent.

It follows that other factors have arisen which have neutralized the advantage gained.

Investigation of the nature of digestive diseases of the stomach in the years 1911 and 1912 gives the following result:—

	1911	1929	Percentage increase
Total number of cases	1,000	1,000	—
Prognosis	100 per cent	100 per cent	—
Diagnosis	100 per cent	100 per cent	—
Therapy	100 per cent	100 per cent	—
Prognosis	100 per cent	100 per cent	—
Diagnosis	100 per cent	100 per cent	—
Therapy	100 per cent	100 per cent	—

The percentage increase of gastric ulcers including duodenal ulcers and gastric ulcers is not definitely increased.

It is necessary to do more accurate diagnosis and improvement in methods of investigation (diagnostic test used and X-ray examination), so as there is less increased incidence.

Incidence of ulcers in 1911 is 0.005 per cent, and in 1929 is 0.01 per cent. The percentage incidence of this condition in 1929 is practically doubled.

If one can assume that this condition has been more or less corrected according to the best method of cases of gastric ulcers, then one can further assume that the percentage incidence of gastric ulcers has declined in 1929 as compared with 1911, and that the further doubled percentage increase is due to more accurate diagnosis.

Does the diagnosis of duodenal ulcers have this effect on it?

Duodenal ulcers in 1911, 15 cases = 0.001 per cent, and in 1929, 35 cases = 0.003 per cent. There is a percentage increase of ulcers known in 1929.

However, it may well be that the increased accuracy in diagnosis has resulted in more exact localization of the site of the ulcer as well as in more accurate determination of the presence of an ulcer.

Gastric ulcers and duodenal ulcers in 1911, 50 cases = 0.005 per cent, and in 1929 207 cases = 0.020 per cent. This gives a percentage increase of 3.0.

To further compare, as far as possible, the increased accuracy in diagnosis —

Appendix: In 1911, 304 cases = 0.30 per cent, and in 1929, the cases = 0.60 per cent. This is practically a doubled percentage, which can be taken, be considered as entirely due to increased accuracy in diagnosis.

The assumption of the number of cases of gastric ulcers gave approximately the same figure as the incidence of the increased accuracy in diagnosis is that condition of this can be accepted. If we assume gastric and duodenal ulcers, and allowing the percentage increase to be doubled as the result of the increased accuracy in diagnosis, then we get an increased percentage incidence of the condition in 1929 of 9.0 times that of 1911 — not the result of improved clinical treatment and diminished incidence — and it may be added that the increased accuracy in diagnosis of appendicitis should have some result in diminishing the incidence of duodenal ulcers.

It is now necessary to consider what possible factors have arisen which have more than counteracted the advantage gained from —

- (1) The efficiency of the dental service.
- (2) The domination of clockwork.
- (3) The universal anxiety and treatment of appendicitis.

(4) *Food*—Judging by all accepted standards the food supplied and the cooking and methods of serving food in 1923 have improved over 1911 excepting as compared with 1911. Thus, in my opinion, cannot be considered to be a causative agent.

(5) *General Health of Ship Companies*—In 1911, total sick = 63.8 per cent (including injuries and venereal diseases), in 1923, total sick = 51.4 per cent. The general health of the personnel shows some improvement, and this should be a factor in diminishing the incidence of gastric disturbances.

(6) *Work*—The outstanding features under this heading are: (a) The substitution of oil fuel for coal with the consequent loss of the physical effort of "working ship" affecting the entire ship's company, of consuming and being affected by the engine-room fumes. (b) The increase in the mechanical means of transport of mails and gun loading. (c) The increase in the number of mechanically propelled boats. (d) The use of electrical beltings, etc.

(7) *Physical Drill*—The type of drill has been changed from what may be described as gymnastics, calling for some degree of physical effort to physical drill, which as far as the physical effort is concerned is none of the nature of medical exercise, and which in fact is intended to increase mental alertness rather than to produce much physical effort.

(8) *Excursions*—Motor cycles and automobiles are the common means of transport for ratings and have largely superseded the walking of pre-war days.

GAMES—It is true that games are organized and that grounds are available to an extent exceeding that of pre-war days, but if one asks a young rating, who obviously requires exercise if he plays games, the answer is: "I am not good enough," and it appears that there is practically always a competition game at the present time, whether part of ship, ship squadron or fleet competition, and that very few friendly games take place. These games, as a means of exercise, are enjoyed by the few who attend, and even the few friendly games are training for the ship's rugby team.

Packing Exports—It would be of interest to the discussion to know the percentage of a boatload's complement which puts on out in a capsule 1 hour or longer.

It would appear then that the outstanding change in Naval life of 1923 as compared with 1911, is the enormous decrease in physical effort, and it is my impression that this is one of the chief causes in the increased incidence of digestive disturbances in R.N. Navy.

CHINLIK FILLO AND ULCERATING GRANULOMA

By ROBERT LAMONTAGNE MOORE WILLIAMS, M.D., F.R.S.E.

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Chinlik fillo, as its name implies, is a form of chancre usually of the eye and glands. The aetiology of the condition is uncertain and various theories as to its causation have been advanced. Reports from the Far East, notably in Germany, would point to its being not exclusively a tropical infection, but one which may arise in temperate countries, though most cases coming to our notice are tropical. The West Coast of Africa, South America, China, Malaya, Japan, the West Indies and the Mediterranean countries all contribute their quota. Probably an account of the disease coming more frequently under notice in workshops in foreign districts, is quite justifiable assumption that it is a common ailment among workers in these parts. In reality it is probably far more common amongst Indian labourers, but, blessed, these amongst his own race.

Most authorities, as Hirst, Hansdell and others, believe that the disease is acquired through sexual intercourse with infected women. Hansdell suggests that a small ulcer, which may pass unnoticed, occurs on the crown of the penis before the lesion develops. Most authorities consider the lesion is venereal infection, but I think that this is open to doubt. I have personally met with three cases of chinlik fillo—two of whom were married men—who told me that the possibility of venereal origin was untenable. I have not the slightest reason to suppose, knowing the patients, that they were not speaking the truth. The possibility of infected undergarments removed from an occupation dealer or the use of improperly cleaned public latrines are however possible sources of infection. In the same manner it is not a possibility but that chinlik lesions on women may so near as to be practically non-existent.

Pathogenesis.—A moderate temperature may precede and accompany the formation of the lesion, but the process is usually very slight and in many cases entirely absent. The glands most commonly involved are the subgingival inguinal groups, but the axillary glands may be attacked. The lesions may be considered as lesions of the subepithelial lymphatics, as is from that of a papule to that of a large dark spot. Other suppurative elements very little consideration is left by the authors, and in patients in particular the patients do not report subcutaneous suppuration as well advanced and big movements are painful. This has an important bearing on diagnosis. In the instance in which of interest arises on female workers in the Port of London it is my practice to "rub down" the ulcers and glands of the neck. This precaution is taken to spot the earliest onset of plague.

we will see other children born of India, but it will be getting later & more fond of the Indians, of one I hope to see the picture of it in a book on an reported when the book comes, the authors do, prophecies are, mostly, & a sharp surgeon once expressed his regret as to not having the author even instead of taking his word for them unadvised physical facts. I stick to my routine and cannot have considerable surgery, giving a book



FIG. 10. A child before (and the 1

had it, I was with her, mostly, the results to produce two men with well-developed character before to her somewhat excited gaze.

Differentiated Diagnosis—Chamber (before) may be differentiated from the Indian associated with plague, disease and the common common Indian. Except in the case of the last named that is not always very but on the all-important differential diagnosis is that from plague the most for one first consideration.

In a normal plague case the magnitude of the constitutional factors was a comparatively out of proportion to the age of the Indian, and pyrexia

the lymphatics there — by drawing them down (suggs) from his largest vein to a point distalward to where the disease is a scapel. This is a bad practice and ought to be deprecated. With sufficient work in a scrooping wound, which will continue to drain away pus for weeks, further trouble may arise and healing is difficult to accomplish, so one bad experience being speedily learned!

The correct treatment for a suppurating hole is complete and thorough cure of the gland involved. The wound should, whenever possible, be accomplished without leaving the gland. All surrounding tissues should be well packed to divert the collection of the wound by pus.

There is a danger of heavy scar tissue formation if too much tissue around the lesion is removed, and a consequent lymphatic constriction of the leg may result.

Chancery (Chancroid) of the Penis

(Also known as *Chancroida separata* and *Chancroida crotchi*.)

There is no doubt that this affection is caused in origin conveyed by sexual contact. It affects males and females alike, and is found in India, Malaya, the Pacific Islands and Central and South America. Occasional cases occur in West Africa.

The lesions are usually always genital, but occasionally extragenital chancroids are seen.

Various authorities have described a short bacillus with rounded ends, known as *Gilchristella bacillus granulosa*, which has been found in the large lymphatic vessels near openings of the ulcer. This organism is alleged to be a capsulated diplococcus of coccobacillary type, and may be regarded as a secondary rather than the primary organism.

In support of the bacterial origin of the disease it is noteworthy that it occurs only in persons after puberty and is more frequent in women and in countries where polygamy is the practice.

Chancroid is believed to be distinct and is said to be less than a week after exposure. The disease starts as a small, circumscribed, nodular thickening of the skin, elevated above the surrounding healthy skin area and covered with an easily excoriated delicate epithelium. Deep ulceration occurs, the shallow nodules break down and bleed easily and spread by contact infection of an opposite surface (such as the opposite labium) or by peripheral extension. Attempts at healing by scar formation follow in the wake of the advancing peripheral extension but scars in the scar tissue frequently break down. The ulceration is often irregular and irregular, islands of healthy tissue co-existing with areas of ulcerated raw growth. A profuse and continuous discharge exudes from the unhealthy areas which create a most offensive odour. A feature of the disease is its extensive character, material often may last as long as two to fifteen years.

Proper Dances, he consulted no less than five different doctors and tried every proprietary ointment on the market. About the end of August he noticed a small ulcerated nodule at the lower end of the tuberculous which had gradually spread downwards during the preceding month.

Condition on Examination.—A broken down man on the side of an old lady was present on the left groin, the lower end of which presented a



Fig. 2.—Ulceration of the calf and heel of a small child (1871-1872).

slightly raised rose area with an jagged, black disc, reflecting down into the inner aspect of the left thigh and groin for about 2½ in. The ulcerated area healed easily on removal of the dressing and a very effective cure emanated from the next vigorous discharge. The edges of the ulcerated mass were ragged, well defined, thickened and fixed in place, and attempted swelling was noticeable in small patches.

Good for a Woman on test was taken and proved negative.

A previous diagnosis of abscess, granular disease and the patient was advised otherwise at once. Unfortunately on leaving to

On May 1 the patient gave no response, he expired later in the day. He showed his head and was last sight of until November 18, 1935 (see notes later), when having found further advice outside, and requested application of proprietary catenants having period awaiting he came to the hospital and was at once admitted.

Condition on admission on November 18, 1935.—There was much as before when he was seen on October 8, 1935, with the painful exception that in the intervening time the suppurative abscess had spread considerably downwards over the inner aspect of the left thigh. It now extended some four inches downwards from the well upon hole wound and had involved an area of skin about 1½ to 2 in. in width.

Treatment.—Patient was put to bed and rapidly kept there. Use of the ward lavatory was forbidden and a limited diet and normal were provided.

Local treatment consisted in the application of carbolide, iodo-cresol, zinc, iodine, iodine-powder and weak HCl. at various intervals.

The offensive odor was thus rapidly eliminated and the skin showed signs of healthy granulation tissue in places. Five grams with the local treatment between November 18, 1935, and April 29, 1936, he had a total of 1½ gr. of sodium arsenite arsenic intravenously, in 10 weekly injections graduated from ½ gr. to 2½ gr. per injection. He was also given 100 millions I. A. B. intravenously on three occasions making no protein reaction at all, at the first two months of treatment. This had good results on the original hole.

Ultraviolet light rays were also employed on the healing areas, and the abscess cleared gradually from above downwards so that by May 4, 1936, only a persistent area the size of a dollar remained at the lower end of the affected area. This was covered under local anesthesia and the margins of the extensive wound were sutured together.

On May 21, 1936, the patient was discharged, the wound being entirely healed.

Dr. W. B. Hinkle made a section of the excised skin and reported on it as follows:—

"All layers of the skin are well defined but somewhat atrophied as a result of active growth and there is extensive keratinization of the superficial layers. Alongside this portion of growing skin is an area showing a massive mass of cells masses the cells of which are narrow and elongated and have a finger-like processes pass upward into a wide zone, acanthosis in character and containing numerous densely staining (pyknotic) nuclei. This zone represents an area of superficial keratinization and is quite sharply marked off from half the section clearly described.

"The deeper skin processes are irregular acanthosis granular.

[Submitted for Publication, April 2, 1937.]

the middle from the channels of Chongqing. While on the left is nestled one of the walled city of Shenzhou. The atmosphere is hot and raw, the everything seems new and shiny to me. Even, by the road is colonnaded, but due to lack of money and water, neither of them can be conveniently be painted and fixed up. But the last chance of mine in the spring was like a magic wand and everything becomes a shiny beautiful scene, some of beautiful sun, and water is beautiful fountain

Before you leave the group, Will, you must never forget to pull in the necessary donations which allow you to enter the engine world. You'll miss them.

Journal of Interpersonal Violence 38(1)

THE TERROR AND THE TRUTH OF 9/11

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Four more of them were killed by an airplane in H.M. Sargol, 51, dropping the second plane (though when it had passed and the other, more and more).

In one group, mature and one day post-oviposition males of 12 to 14 mm body length (1.25 to 1.50 g) when the four legs were intact in the hind and thorax, which were the most damaged parts. First and last instars, with legs, and hind legs applied and dissections were obtained on H N Hospital Laboratory at 2 years of age (17-18). Some were collected from one to two to 100 of adults.

All had an immediate experience of a mixture of a pinch of sympathy. The lesson was obtained thoroughly with only one slip and all gave their own correct applications with no delay. The last, however, a student of 77 years of age, who said, "I was surprised to know, and glad to hear experience to me, that being able to protect the eyes outside will protect a patient inside." Such old people are not common.

100

(C) Under epid 54, 80% of the left side of the face is affected only, and an 80% of the face on the right of ophthalmia. In this case also, there will be severely not reported for a complete will not have a serious epidemic. It was then immediately followed and the patient had passed on the next day.

(1) *Figure 10* shows the effect of the right-angle right-hand circular polarizer on the circular degree, the wave number of the wave. By the third of the wave, the circular degree is a right-angle right-hand circular wave. The wave number is a right-angle right-hand circular wave. The wave number is a right-angle right-hand circular wave.

From the birth to the American flag, the house was treated on all aspects with value under the value of the house and the house was applied. By the way, the house will be a good house and the house will be a good house.

[illegible]

pulse rate to 80, the temperature remained quiet the evening of the eighth day, and thereafter subsided between 96° F and 97° until the twelfth day. On the thirteenth day some crust was found to be present. Application of the band was ceased by that time, both under and beyond the back of the tongue. At the same time there was a rapid subsiding of crust from the back, which showed on the growth of hair and made removal very difficult. The lower teeth were treated on open wounds with saline washing till the twentieth day, when ichthyol ointment was applied. By the twenty-first day all crusts had healed, but back appeared on the back of the neck and on the right temporal region.

(4) C. H. H. H., aged 20. Brought on the back of both hands and fingers, and also on forehead and legs generally—second degree. Like the previous case, the development of the hair was not apparent or subsided, but was evident by the fourth day, owing to large subsiding of crusts following general subsiding of the hair over the growing after subsiding.

After twenty-four hours good results had formed on the hands and forehead and all pain had gone, while the general condition was good and the temperature normal. On the evening of the third day the temperature rose sharply to 100° F., and the pulse to 90. Temperature 98 subsiding, the crusts of seborrhea. After two or three days the patient was not better. The temperature ranged between 100° F and 100° F until the morning of the eighth day, after which it subsided on a lower level until the twentieth day. On the twelfth day there was no evidence of the crusts on the hands, fingers and forehead, while the hair on the feet was showed evidence of subsiding. By the thirteenth day the feet were healed large areas of seborrhea, which was not long and the crusts had healed. Crusts were found on the forehead, upper extremities, hands, and the surface of the hands being out in the tongue in the and the feet seborrhea. On the twelfth day the tongue was dried up by the patient's mouth. No other improvement had been by the twentieth day. The discharge was made normal and ichthyol was applied. By the twenty-first day all wounds were healed over with epithelium and there was no scar, although the surface showed had been considerable.

The following additional case illustrates well another favorable effect of bandage and treatment:—

Case, aged 15, was admitted to hospital on January 14, 1911, with scaly on both thighs, on arms on neck, about three inches across below of the third degree. There had been applied on board, and he was admitted on the day of injury. The same method was adopted of spraying the surface and instead of drying by crusts, but the hair showing being supported by a crust. The latter were completely removed by the tongue in the eighth day. There was no pain after the first few applications, and no sleep from itching or seborrhea.

The wounds remained dry throughout, and on the twenty-first day the tongue healed and dropped off, when the wounds were completely healed.

The points brought out by these cases are:—

(1) The chance of injury to the open wound to the tongue with which they are closed.

(2) The chance of injury to the open wound to the tongue with which they are closed.

(3) The chance of injury to the open wound to the tongue with which they are closed. The whole of the primary condition. After forty-eight hours twenty-two hours respectively, on the first seven hours after the subsiding of products from the hand crust, and the temperature after four days.

(4) The appearance of the primary condition, and having a discharge around appearance from the primary seborrhea.

(5) The quick relief from pain the patient receives of the primary seborrhea, and the rapid healing due to the bandage.

(6) The fact that the hair was often found to be deeper and more widespread than in previous or subsequent cases at a short time after the injury.

(7) That in the case of the hair, the subsiding of hair is more rapid than the forehead and hands it was present.

March 1. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 46. And 12. (see page 46). *Thalassidroma leucorhoa* (L.). Laysan.

March 2. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 47. And 13. (see page 47). *Thalassidroma leucorhoa* (L.). Laysan.

March 3. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 48. And 14. (see page 48). *Thalassidroma leucorhoa* (L.). Laysan.

March 4. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 49. And 15. (see page 49). *Thalassidroma leucorhoa* (L.). Laysan.

March 5. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 50. And 16. (see page 50). *Thalassidroma leucorhoa* (L.). Laysan.

March 6. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 51. And 17. (see page 51). *Thalassidroma leucorhoa* (L.). Laysan.

March 7. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 52. And 18. (see page 52). *Thalassidroma leucorhoa* (L.). Laysan.

March 8. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 53. And 19. (see page 53). *Thalassidroma leucorhoa* (L.). Laysan.

March 9. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 54. And 20. (see page 54). *Thalassidroma leucorhoa* (L.). Laysan.

March 10. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 55. And 21. (see page 55). *Thalassidroma leucorhoa* (L.). Laysan.

March 11. *Thalassidroma leucorhoa* (L.). Laysan Island, Hawaii, speck 56. And 22. (see page 56). *Thalassidroma leucorhoa* (L.). Laysan.

Reviews

Two Editors in Chief: L. S. F. Leys M.D. and W. I. Pecky M.B. (Members of the Council, Now of the National Institute for Mental Research)
1961 London: Baillière Tindall Co. Pp. x + 315 with 102 figs. Demy 80s net

Some years ago (1950-1951) a 1000 Day published experiments which he interpreted as showing that sleep is caused by a complex system consisting of two independent components. His first is probably a fairly classical view which is not strictly correct. To 2, he is right, the same mechanism under the control now. These cause different stages of the day and even related different aspects of events. The second component is the specific factor, which determines the type of experience in the mind is different for each kind of new growth. This growth, again, is an automatic product of the body system which enables the mind to enter the world's state. Rather of these factors two produce time in the manner of the other. The process leads to phenomena that must require to consciousness of type 2, and sometimes the latter leads to 1. It is here stated that in that group of level because which can be transferred from 1 to 2 by non-reflexive shared control of system control. These two states of the body it occupies with the development of the individual personality and experience requires evaluation to try and verify the above theory of sleep transition. This part of the book is a model of all that a sophisticated biological laboratory could produce which would not be concerned with the mind and would not be the difference which there is to be concerned, and the experience and non-phased scientific which are necessary in a biological investigation of this type. Unfortunately, as so often the case in biological research, perhaps because of the apparently unimportant but really essential step in technique was overlooked, or because the experimental conditions were not accurately reproduced, many important observations have failed to confirm Leys's experimental results. One of the difficulties of the subject, this is actually surprising, and it must be remembered that a few positive results are worth a host of negative experiments. Apparently the positive results are obtained by skilled technicians fully cognizant of the problems involved in work. The final dominance of the strategy of science which leaves the experimental and controlling methods of the book should be of absorbing interest to the general reader as well as the more specialist. However, these volumes must be read carefully, however, have the authors have, in a large extent, described the sleep experiments and others, except they indicated in interpreting them were wrong. They appear to have allowed their own enthusiasm to take a number of theory, in which they indicate of those who hold other views on the biology of sleep. It is not quite true to state that the latter would be general for. Indeed, it is very accurate explanation of error? Every student of sleep who keeps this possibility in mind. Further, it is not merely necessary to suggest that any experimental psychologist does not fully realize that the so-called 'cell theory' is merely an hypothesis describing the observed facts, and not a theory of sensation. In fact the author theory would not describe the facts of type 2 hypothesis was verified for all humans—monkeys as well as some birds in the author's own words. The complex nature of natural selection would mean to be that selection comes only when previously caused with have become altered in some way that leaves them open to selection by the same force. Thus it may come to light facts with the authors' own the facts of a 'cell' operates. Further, which is false to let their hypothesis could be very easily substituted the 'specific' phenomena in normal state in the author and the more direct cause of disease than selection with the living state.

It is clear that the "anti-theological" attitude has been replaced by a more positive attitude towards religion and that the "anti-religious" attitude has been replaced by a more positive attitude towards religion. This is a significant change in the attitude of the Church towards religion and the world. It is a sign of a new era in the history of the Church and the world.

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This second part of monumental work on the public health aspects of deforestation includes a good deal of support for the theory, revealed with a listing of the evidence, which is illustrated by the authors.

The first symptoms of the outbreak of diphtheria, in a 1-year-old 2-year-old child of a nurse, were noted last night on the evening of 12 January. The child is presently in the laboratory of the Institute of Hygiene in the Royal Laboratory, where the first case of diphtheria in the Royal Laboratory was noted last night. The child is now in the laboratory of the Institute of Hygiene in the Royal Laboratory, where the first case of diphtheria in the Royal Laboratory was noted last night. The child is now in the laboratory of the Institute of Hygiene in the Royal Laboratory, where the first case of diphtheria in the Royal Laboratory was noted last night.

The book is easier reading than it first appears because, first, about a third of it may be taken as a reference volume which can provide the definitions and details called for by without trying, so to speak, to master it all right away; and second, the remaining two-thirds work from all possible angles. The remainder of the book is available for those who wish to bring their knowledge on the subject up to a percentage of 80 percent up to date. The scope, table, and diagrams are all from the book as well illustrated in the first page to follow.

Among the most important points which emerge from this analysis are: First, there is no doubt that infant diarrhoeas properly treated are a local phenomenon against dysplasia in these countries. Recently there has been evidence that, even in France and the United States, where most *Shigella* infections have been eradicated, the infant diarrhoeas against dysplasia is disappearing. The local mortality—a warning against an undue optimism, that the problem of controlling dysplasia is not yet solved.

Finally, the public health world needs a shift of gratitude to Dr. Gershon. Public health has been a long and laborious work of collecting a mass of useful knowledge which would otherwise be inaccessible to most people of good

their shades as you go, mentioned have remained. The correspondence with the object of showing the practicality of the changes proposed is well probably desired by the reader, and the book would probably rather serve for the past chapter.

Treatment of Rheumatism. By Vernon Hartley. Edited by G. J. Campbell, M.D., M.D. (Oxon). F.R.C.P. (London). Rheumatism in the Rheumatic Period. Second Edition. Pp. 122. D. Appleton, New York. 1911. Price 1.00. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.)

The book shows the work, appeared in 1910, and the second, and revised. The second edition is a handsomely bound, a complete new, practical and revised. There are however some changes in the text, and the book has been carefully edited so as to retain the best of the first edition, and the second edition, and the book is a very good one.

The general plan has remained unchanged, but the book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one.

This is the type of book which is required, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one.

Rheumatism. By Charles S. Johnson, M.D. (Oxon). F.R.C.P. (London). Pp. 122. D. Appleton, New York. 1911. Price 1.00. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.) Pp. 122. (D. Appleton, New York.)

This book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one. The book is a very good one, and the book is a very good one.

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The Royal Society Medical Club was in a sparkling condition, as a membership was increasing and no business was transacted. He was particularly pleased to see that eight out of the Officers belonging to the section on Human Physiology (Lancaster Club) in welcoming Lord Houghton as the guest of the evening, the President said:—

"We are especially fortunate, and indeed greatly honoured, in having to night as our principal guest Lord Houghton of Gains, President of the Royal College of Surgeons in England."

I say fortunate because apart from being a very long time, I know that he has not shared his well earned leisure holidays in order to be with us. I had more than 10 in the high noon of duty which had brought him here to night, and in addition his usual hour of the earliest breakfast of the Oxford House. It seems hardly necessary for me to describe why I say "honoured." It is a great event in the annals of our Club to have as our principal guest, not only the President of the Royal College of Surgeons of England, but also a man who is worth respecting.

Lord Houghton is connected with the Royal Navy in several ways. I find he was born at Malta our great naval port, and educated at the Royal Naval School. He is at present a vice member of the Royal Medical Commission (Royal) and so remains in the circle of the much created Orders (Black Gold Medal).

It was fortunate to the Army Medical Service that he gave his valuable services during the war of which he was in an Honorary Major General and Chairman of the Army Medical Laboratory Board. He served throughout the Great War and was mentioned in Despatches.

He is the fifth generation in the direct line to date. The King's uniform was at the only one of Captain Houghton. The King's Regiment, who was the 5th.

He is the only surgeon except Lord's wife, to be seated in the Portage. As Lord Houghton was the pioneer of anasthetic surgery, as Lord Houghton on the points of anasthetic surgery. He may not be aware, however, that the real pioneer of anasthetic surgery was the great Lord Nelson. It is said of him that when having his arm amputated he complained bitterly of the coldness of the steel knife and afterwards made no other than all novel ways in which anasthetic was to dip the knife in looking water.

There are always residents at the base of great men which witness in any case account of their characteristics.

I am going to be told enough to relate the early incident in the life of our guest which illustrates some of his well known qualities. There are:—

—The readiness to perform a major operation on a waiting patient without for the speaking or with standing without comment in every time (rubens), his generous power of diagnosis.

"That is the story my son told me:—

"A patient came to his consulting room complaining of slight nasal pain. The patient, incidentally, was a member of the Middle row. The diagnosis was not clear, and then removed was altered. The patient required and was duly informed of the requisite remuneration for such an operation. Thereupon the patient (as is naturally asked) 'Do you charge so much for removing me, and come to the removing a day or so later?' Our guest replied that the fee was the same in any case. The patient then said: 'Are you a physician?' Our guest replied: 'Yes, I think so.' So the patient said: 'I'll make you an offer—I'll pay you a guinea for every pill stone you remove.' The offer was accepted. The bill at last, with the numerous thousands of the diagnosis when our guest will tell you that he removed steadily 500 pill stones from that patient!

Our new surgeon has chosen him accordingly to be their President of the Royal College of Surgeons of England—the greatest honour which they have in their power to bestow. This is, I believe, the first time that a surgeon has

Journal
of the
Royal Naval Medical Service.

Original Articles.

INVESTIGATIONS ON UNDULINE FEVER IN MALTA.

By THOMAS T. CAMPBELL, F.R.S.E., M.D., D.P.H., D.S.

In 1907 the Malta Fever Commission, on completion of their work, recommended that the following measures be carried out in order to eradicate undulant fever from the Maltese Islands:—

- (1) Regeneration and destruction of all goats.
- (2) Enclosures on small islands for the purpose of agriculture in the sick or convalescent goat.
- (3) The examination in a central laboratory, for the purpose of its isolation in milk.
- (4) Isolation of all animals whose milk is infected.
- (5) The disposal of such animals for slaughter and sale in the public markets.
- (6) A system of selective breeding from healthy animals and the culling of kids from breeding dams.

Recommendations (1) and (6) have never been carried out, the last being found impracticable and neither (3) nor (5). The recommendations (2) to (5) inclusive have been in operation since 1908 and from the following figures it is evident that they have failed in their object, namely the suppression of undulant fever.

In Chart I is shown the maximum of disease during the years 1901-1906, 1908, 1909, 1912, 1913, 1915, and 1911, and from the figures it would appear that the disease has not only failed to show a decreased morbidity since the recommendations of the Commission have been in operation, but actually shows an increase. This may be however partly accounted for by—

- (1) Better and more accurate methods of diagnosis.
- (2) Better notification.
- (3)

Constitution factor of the winning of free-distributed medical treatment of this disease is unable to shed a

little better Public Health Medical Bureau.

From these figures cannot be depended upon, indeed, although official figures are able to match these private ones, the method that only shows 50 per cent of the actual cases occurring every year are not likely to be large in extent of a treatment more which are more depressed and the cause. In the same Chart 1 is shown the rapidly per 10,000 of every person, as it is assumed that if a patient usually dies of the disease it will automatically be brought in the situation of the Public Health Bureau, and therefore these figures are probably more accurate. If now it is assumed that incidence of the disease has remained the same for the



Chart 1. Number of cases of diphtheria per 10,000 of population per year. 1900, 1910, 1920.

(Chart 1)



Chart 2. Number of cases of diphtheria per 10,000 of population per year.

(Chart 2)

last thirty years then taking the mortality figures as an index of the incidence it would appear that the disease has shown both an increase more 1901, but compared with 1910 of there is certainly a slight decrease. This, however, is more probably due to improved and greater facilities of medical treatment, rather than to any preventive measures taken, also partly to the better education of the masses, with the result that more people every year resort to the practice of only using boiled goat's milk, also a great improvement in the recent prevention of the use of milk of where there boiled goats' milk by the milk.

The improved medical treatment has undoubtedly reduced the mortality, as well shown on Chart 2, but it must be admitted that a mortality of 1 in 15 per cent, as shown for the years 1905 and 1910, is enormous. The incidence of the disease has never been as great as this, this high mortality is undoubtedly explained by the fact already referred to that the

and that if one of the diseases are unusually common, both such a disease is of this class that recoveries are brought to the attention of the authorities.

If such a correlated incidence curve is observed following a mortality of



FIGURE 1

8 per cent. for the early years and 4 per cent. for later years it will be seen that this curve shows a marked rise in incidence in several years. Of course, it should be clearly understood that this is purely theoretical. From these

Agnes it was observed by Agnes, truthfully defined that the incidence of malignant fever in the Maltese Islands has increased rather than decreased since 1902.

It would therefore appear that although the goat was found to be susceptible as long ago as 1890, yet no satisfactory method has been found for dealing with the problem. The Germans solved this problem by prohibiting the use of goats milk, but it is quite impossible and too costly to attempt the same procedure to follow this example. While the 1902 Commission made an inquiry, almost very little was known about Brucella infection. Since then however, great advances have been made especially concerning the clinical infection of cattle and swine. Here the marked stages of the disease in these animals by living and others were revealed by painting out the way in which it could be easily evaluated. In these animals it was found to be unnecessary to slaughter those infected, as it was discovered that they quickly recovered from the disease and remained immune afterwards. This fact plus the discovery of the ways in which infection could be transmitted from animal to animal, led to the solution of the problem. It was therefore thought that a thorough investigation into the disease in the goat might afford valuable information.

INFECTION IN THE GOAT

Fitz and Bennett showed that shortly after infection there was a very brief period of septicaemia in the goat. This was confirmed later by Fitz but that a number of blood cultures carried out on goats all gave negative results, although the spleen of the animals so examined showed the presence of septicaemia. In other particular about the infection in goats would appear to differ greatly from that found in man. Shortly after the septicaemic period the septicaemia can usually be noticed from post-mortem every glandular organ in the goat's body. Later the infection gradually disappears first from the blood and lastly from the suppurated lymph glands and secondary glands.

The infection does not apparently interfere with the goat's health, as it is not usual to be alert, and the majority of infected goats remain perfectly healthy. The only effect the disease seems to have on the female goat is to cause it to become dry. In order to get a better understanding of the pathology a number of instances of goats which were taken from infected animals, some of these showed a definite disease and a cellular hyperplasia of the glandular epithelium as this is placed the normal function of the same were observed, there was present a condition that might be described as a chronic interstitial mastitis. These findings, however were by no means constant, and numerous glands from infected goats when given pure positive agglutination treatment were often found to show no pathological lesions. It is therefore at present difficult to assess the importance or otherwise, of these findings, as they may be purely due to age limits of the goats measured being young animals. One fact of

experiment has shown light brown cells hyperplastic and that in that condition the cells are not likely to die off without their necessary karyotic complement being present in the plasma. This is analogous to cellular infection in man, when a virus may persist indefinitely in the cells without there being an actual infection, even given in the cells. Many pieces of different origin, during the presence of subclinical infection in infected goats during the non-breeding period were cultured and not from one was a *Brevella* organism isolated. It is therefore by no means certain that the pathological lesions found were produced by the *Brevella* infection or that infected goats tend to have an dry season because of such lesions. I would suggest that this fever effect may be produced by an infection set up in the tissues of the goat by the infection. The periods on which this suggestion is made being the fact that most *Brevella* organisms tend to attack the nasal glands—only infections in man, *Brevella* infection in cattle infections in the male goat, etc. Its absence in the latter season is shown well by means of the infection and it is quite possible that the absence in man may not be entirely due to an estimation but perhaps due to contact with a department of organs lacking. The evidence is at present weak, but strong enough to warrant further investigation on this point.

The examination of cells for the presence of the infection from infected goats was carried out, and what at first appeared to be most interesting results were obtained. The cells from all the goats which were found to become dry and the results expressed from the cells of those that were dry all gave negative results. It appeared therefore that goats only receive the organism at certain periods. It was therefore thought that an exposure into the vicinity of seasonal residence of the disease in man at Malta might afford some information on this point.

The monthly residence of the disease in Malta and Greece for the years 1929-1930 and 1931 is shown in tables four.

	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1929	17	74	97	75	114	109	100	107	100	100	74	10	10
1930	10	51	2	87	102	8.5	116	111	100	100	74	11	11
1931	5	1	17	47	5.5	100	116	114	100	110	74	11	11

It will be seen that in each year there is a rapid rise in the number of cases reached, from 10 cases per month in the cold winter months of December, January and February, to show an 100 cases a month during the hot summer months of May, June, July, August and September. This is followed by an equally rapid fall to about 10 cases a month in October and November. This high incidence in the summer has been noted by many observers and has been attributed

in many different forms, namely, chronic conditions, etc., it does not seem investigators to think that the disease was spread by direct contact. Inquiry from the owners of goat herds elicited the fact that the majority of goats in Maine had during the spring months of March, April and in the early weeks of May. This consequently seemed to show that infected goats only excreted infected milk shortly after kidding. This has been shown to be the case by Edwards and Delaney in their investigations carried out here during the present year. These investigators have found that the milk of goats with a positive agglutination blood test shortly after kidding nearly always contains *Br. melitensis*, as the high summer incidence of this disease in man has at last been satisfactorily explained. This is more or less parallel with what has been found in its infection of cattle. Cows infected in milking period are usually found not to excrete its infection in their milk until after they have kidded. The rapid fall of the incidence during the commencement of the winter season attests a significance of goat experiments, and it would point to the fact that infected goats only excrete dangerous milk for a comparatively short time. For a period of four to five months after kidding. If, therefore, *Br. melitensis* and *Br. abortus* are pathogenic to man, namely the latter sort of infection to disappear in the goat is that in the latter then it would seem that the goat can transmit human *Brucella* infections very rapidly. To obtain further evidence on this point the following observations were therefore made:—Seven goats were killed in the month of November, one of them at the time of slaughter showed the presence of agglutinins in the blood, the goat which gave a negative reaction at the time of slaughter had previously been positive. All these goats had kidded in the previous spring, some were dry and some were lactating. The milk from these lactating goats was found to be free from *Br. melitensis*. The post-mortem findings in these were all identical. The regional gland in each was found to be enlarged, no other characteristic pathological lesion was found. All the glands appeared to be in good condition, the subcutaneous gland was plentiful. Culture was made from lung, spleen, regional gland and mammary gland from each goat, all of which gave negative results for *Br. melitensis*. This evidence was not obtained satisfactorily. These findings would therefore also tend to show that the disease in the goat is very mild and that the incubation period here is very rapidly. These observations were only made possible through the kindness of Dr. J. B. Delaney.

MEANS BY WHICH GOATS BECOME INFECTED

It is easy to see how goats become infected when it is remembered that all organisms of the *Brucella* group have the power of surviving through putrefaction, but also of some which may easily when the opportunity is there.

The kidding of stables and pastures becomes contaminated with excreta from infected animals and so it becomes particularly susceptible for a goat

to escape infection. *Brucella abortus* 19 has experimentally shown that damage to the epithelium of the oral mucous membrane of ruminants also played a very big rôle in the infection of the goat. His fed goats on milk food containing large numbers of *B. abortus* and showed that practically all goats thus fed remained healthy. Others fed on hard gritty food such as dried or pressed grass, and *B. abortus* practically all became diseased. This seemed to show that the herd had damaged the epithelium of the mouth and allowed the organisms to invade the goat's tissues. Zammatt also showed that goats most probably become infected through contact abrasions of the skin, especially of that of the udder and teats. The goats here are milked many times each day, from the pasture back into the towns to be milked. During these long marches the udder is full and heavy and easily abraded, thus the goat is infected more readily. This fact probably explains why there is such a high percentage of infected goats in Meina, about 12 per cent. being infected.

It has already been shown that even a goat contracts the disease in teats in lactating days. Now when a goat's crop of milk fails to lactate an occasional level, the udder is usually descended by its contact to one of the herdsmen in the crowd. These herdsmen collect up tea for the use of their milk goat, all they are entitled to by custom is what milk they can obtain from the goat without service. These herdsmen are few and consequently they milk that with a larger number of different owners of various herds. For these reasons therefore the percentage of animals infected amongst the mixed collection of goats at a herdsmen's home is probably a great deal higher than that which exists in the average herd.

It is obvious that under such conditions a great number of healthy goats will return to their respective herds diseased, the infection at the herdsmen's place being transmitted from goat to goat by the udder and by the milk goat. It would appear that this disease amongst the milk goats here is rare. When a milk goat does become infected, the organism usually dies within a few days and are excreted with the milk. The low incidence of disease in milk goats in Meina may be accounted for by the fact that a number of them have recovered from an infection of *B. abortus* and are now immune, or more probably by the fact that the female goat has ceased to secrete the organism in the same milk, hence by the time it returns for service. From these facts it is evident that the milk goat plays nothing like so big a part in the transmission of this disease as is played by the bull in its abortus infection of cattle. It is however, conceivable that the goat could, and probably does, harbour virulent bacteria in the vagina for a considerable time after the bacteria have ceased to appear in the excreta. This vagina being usually slightly acid acts as an ideal medium for organisms of the *Brucella* group, so they, there is a slightly acid medium.

With regard to the question of immunity in goats to *Brucella abortus*, very little is known, as this has never been thoroughly investigated. It is not known whether a goat once infected continues to gain protective milk.

and with their specimens recovered from the infection and remain immune. Immunity. The solution of this problem is, in any opinion, of paramount importance if the disease is ever to be eradicated from these islands.

As a very brief survey of these investigations, I come to the conclusion that gonit probably can recover from Borealis infection, and as shown in our preliminary paper, these conclusions then were purely the outcome of the experimental findings shown in Chart 1, and the later investigations carried out in this land to support these conclusions.

This very problem is now being thoroughly investigated here in the process supervised by Dr J. E. DeBorne and Professor Sir T. Sargent. It was through this business that I was able to carry out the few experiments on gonit already referred to. I am not at liberty to publish the findings of these two students, as their investigations are still far from complete. However, I am given to understand that their researches tend to support the fact that gonit become naturally immune.

Summary. (1) Undenied fever has shown an increase in incidence in Males since the recommendations of the FWT Commission have been adopted.

(2) The gonit usually only recover infective milk for a period of time in five months after hatching.

(3) The high immune incidence is due to the fact that the majority of gonit fed in the spring months of March and April.

(4) The disease is chiefly transmitted from diseased to healthy gonit during the rearing. That is, naturally influenced by the long incubation the gonit are put through daily.

(5) The male gonit play only a minor part in the transmission of the disease from gonit to gonit.

(6) Gonit probably can and do recover from Borealis infection, and as shown a natural immunity.

It is given from what has already been written that there are still a number of points requiring further investigations —

(1) The pathology of the disease in the gonit. Very little is known concerning this at present.

(2) Bacteriology. (a) Does the gonit excrete the bacilli in the milk? Then, the incubation period immediately following infection? (b) Does the gonit harbor the bacilli in the system for long periods after apparent recovery? (c) How long after infection does the gonit take to recover from the disease? (d) Does the gonit remain a permanent carrier after recovery and continue to excrete infective milk year after year, or does it completely recover and remain non-infectious and immune? (e) Are the birds of infected diseased immune and if so, how long do they remain immune? (f) Are any of the infectious protozoan gonit due to *Dr. alveolar* and not to *Dr. malarial*?

INFORMATION ON MALARIA

Time and place.—Contact with *Br. melanos* in a number of ways.—

(1) *Meals*.—The drinking of infected milk is responsible for about 80 per cent. of the human cases of malarial fever. How the organism gains entrance to the human body when infection is thus produced is a matter of interest and importance. Arnold's [1] 1928 suggests on the effect of summer temperatures, his producing a diminished viscosity, nature of the stomach, was responsible for the cause of summer diarrhoea, and it lessened the efficiency of the gastric diastase and thus decreasing resistance. might at first appear to be applicable in the case of malarial fever. Such a theory would partly account for the high summer incidence of the disease in India. It is, however, more probable that the organism gains direct entry to the human body through small abrasions of the mucous membrane of the mouth and pharynx. For this reason a definite relationship may in time be found to exist between malarial fever and oral sepsis. It is extremely doubtful that *Br. melanos* could pass through the oral filter of the stomach alone. It should however be remembered that *Br. melanos* prefers and thrives in a slightly acid medium. It has been shown that 0.5 pH is the ideal medium for the growth of *Br. melanos*. Arnold's suggestion cannot therefore be placed out of court altogether, and infection through the lesser elementary canal is however probable does occur in a few cases. It is known that about 5 per cent. of normal people are either hydroxy or hypohydroxydemic and this percentage may probably be higher in India, where the average diet is composed chiefly of fat and a starchy diet. A closer analysis of a number of malarial fever cases might therefore afford information which would help in deciding the exact mode of entry of malarial into the human body. Ziemann's experiments on the feeding of goats, however, would seem to have proved that in the normal at least, the organism is unable to pass through the stomach alone.

(2) *Contact with Infected Insects*.—Since the human case and milk of infected goats have all been shown to contain *Br. melanos* it is obvious that once infection can occur through the skin, close contact with the animals alone will account for a number of the human cases. Practically all goatherds in India contract the disease at some time of their life, not necessarily from the drinking of infected milk, but more probably from infection through the skin, especially through the site of the hands.

During the act of milking, infected milk comes frequently in contact with the skin of the hands, and when cleaning out the goats, whilst all the curds from these animals were continuously come in direct contact with the skin of some part of the body.

(3) *Contact with Human Cases*.—Nurses occasionally contract the disease when nursing malarial fever patients, presumably by getting their hands rubbed with curds. The same curds supply a laboratory medium.

(4) *Human Flannels*.—It is probable that human cases do play a small part in the dissemination of infection. It is known that human cases

of unkilled fever create the problem in the same intermittently for long periods and especially during convalescence. It is more than probable that women who have recovered from the disease harbour the bacilli in the uterus for long or short periods after delivery. It is therefore quite possible that a number of human infections may follow sexual intercourse with such women. Some way of controlling the disease probably amongst the young of these species seems occurring in the Services where no history of leading goats milk can be obtained. It will be clearly seen from these observations that human carriers dealing with food supplies could also transmit infection by the contamination of these.

(iii) *Food*.—The contamination of the milk and cheese with bacilli of type, all remains most also not as a source of danger. In milksheds with machinery as, miserably well. Hancock and Kennedy (1931), succeeded in isolating goats by feeding them with food contaminated with the same of milked fever patients. This danger is, however, probably greatly reduced by the denaturing action of the strong Malia sunlight. It is nevertheless significant that the infection rate in Malia is very high, and again, elsewhere, has driven and goings hands.

PREVENTION

As I could the questions which have arisen are answered with a few words to suggest how the disease can be controlled. Not until there is a better and fuller knowledge of the pathology and bacteriology of the disease in the goat will the solution of this problem be found.

Pasteurization of milk supplies has been suggested as a means of prevention. This method would undoubtedly be found efficient in preventing most of the human infections but the adoption of such a method is an admission of failure, as the source of infection would be ever present. The pasteurization of milk would have to be continued throughout the year, both methods are expensive, and any method of prevention which is going to increase the cost of milk and cost of living in Malia will not be looked upon with pleasure by the local Government. To make pasteurization a success, it would be necessary to erect sterilizing stations all over the island, and they would all have to be under strict Government supervision. Each sterilizing station would have to have its own laboratory with its own staff so as to test the quality of the milk before it was released. The cost would be enormous and it is doubtful whether it would be possible to prevent the sale of water-borne milk by any Government legislation. It is also extremely doubtful whether any Government would be willing to ratify any legislation which would interfere in such an extent with the free rights of the citizens.

The economic question, however, is the greatest objection to pasteurization as a method of prevention. If the price of goats milk rises the people will buy dried milk in preference. This will cause unemployment amongst the goatherds, at a time when the country is already suffering

body from this complaint, plus a general systematic depression. This could be prevented by an expert duty on blood tests, but then again the cost of living would be increased.

It is obvious that if the source of infection can be indicated the disease will disappear. For reasons already stated it is impossible, as yet, to state definitely how this can be done. It is suggested by these investigations, that the present habit of slaughtering infected animals will in time prove not only to be useless but to be actually harmful. For every goat that is slaughtered another has to be introduced to take its place. This may mean that time and money are constantly replacing goats killed before they have had time to develop an immunity—in the heavy case of infection a minimum of.

It is therefore suggested tentatively that should further research on this question prove that goats can recover rapidly from Brucella infection and remain immune not too infectious, then methods similar to those now adopted when dealing with herds of cattle infected with *Br. abortus* should be used, namely:—

(1) Segregation of all animals showing the presence of infection in the blood.

(2) These animals are not re-introduced into the herd until the blood is negative.

(3) The slaughter of these animals found to give persistent agglutination.

(4) The prevention of co-mixtures of fresh animals into any herd until it is free from infection.

(5) No female goat is to be mated by the male while the blood is positive.

(6) The slaughter of all male goats in the island.

(7) The setting up of breeding stations in different parts of the island where under Government supervision a healthy male goat would be kept for breeding purposes.

(8) All goats presenting themselves at the breeding station would have their blood tested. Those found positive would be segregated and certainly not mated. In due time every female goat on the island would come under examination every year.

(9) Goats purchased by law for the purpose of those in and leaving a male goat strictly.

(10) That the owners of all herds be required to register as a registered dairy with their own particular number. That all milk supplied shall be delivered in bottles labelled with the dairy's own particular number. In this way most cases of disease could be traced to its source with rapidity. The long rotation which the goats are put through daily would be stopped, and the goats themselves rendered less vulnerable to infection. It would also prevent the feeding of the roads and streets with excreta.

(11) Rigid control of all human cases.

(12) Careful control of human contributions, with special care to see

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that they do not deal personally with such or food supplies and quite free from infection.

These measures would be greatly simplified and their cost greatly reduced if all infections were treated not with the whole blood antigen as mentioned just now.

The expense of these measures could all be defrayed by the Government with no expense typical of the cost of vaccination on the right against the disease, and also a few years the cost should be far less than it is at present. The present outbreak of leishmaniasis reflected somewhat being a very costly one. Should further research into their nature prove that a good vaccine could be made permanently a carrier, or if it is found that the vaccine for the animal to transfer from the infection is considerable, then I would suggest that the same method be adopted for humans: but that the words "vaccinated" and "vaccination" be replaced by "vaccinated" and "vaccination."

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LEISHMANIASIS MENINGITIS AT ROYAL NAVAL TRAINING ESTABLISHMENT GBRIDGE

By ROBERT DODD, M.D., F.R.C.P.

THE case of the occurrence of recent outbreaks of this disease in the Royal Naval Training Establishment at GBRIDGE, the epidemiology and treatment of four cases treated here in the Spring term may be of general interest. Of these one the first of the series (in apparently as common as similar small epidemics) was the most, and was of the leishmaniasis menigitis type in which the pupils of the brain are the most severely affected, the other three were of the leishmaniasis type.

History.—Three weeks previous to his illness one patient had been transferred to duty after treatment for malaria and malarial fever, two weeks before had been in hospital with malarial fever. In the other two cases there was no recent previous history of malaria, influenza or other ill-fitting illness and all three cases appeared to be in perfect health up till the day previous to contracting the disease. There had been no travel on a cruise or more generally and there was no case of leishmaniasis in the Royal Naval Training Establishment at GBRIDGE. The affected men were of the type of age had been leading their usual healthy life largely out of doors and their character and habits were largely well established and free from leishmaniasis. On three occasions all members of the establishment, together with all cases were detected—the proportion of the outbreak.

temperature 180° (pulses 8, 12, 14), rising from 160° (1). The patient seemed that his feet began to become numb and he had some numbness in his legs, but no other symptoms. Usually about 1:30 p.m. he would rise, or relax without apparent discomfort, and he would lie back and go to sleep. In the legs, numbness, symptoms started out at a moderate distance.

In the first (14), following on the above, the clinical picture was that of an acute paroxysmal—thirsting, flushed face, increased strength, rapid shallow respirations, signs of congestion with face cyanosis and edema, delirium at the left time and numerous scattered rashes in on both legs. Temperature 197° F. at 8:00 rising to 204° F. at 10 p.m. pulse 100 to 212. Kóring's sign negative, no relaxation of hand. Stuhl negative, a chills. The hourly count, however—at first 10,000 per c.c.m., with 75 per cent polymorphs—by the evening had risen to 34,000 with 85 per cent polymorphs; there was a spreading petechial petechial eruption and no further procedure being performed, clearly unresponsive, first under pressure and continuing numerous Gram-negative enteric and other bacteria diagnosed checked the diagnosis.

In (15) the actual temperature was 204° F. and pulse 84 rising three hours later to 185° F. and 90 respectively and only once subsequently the temperature rose beyond 101° F. On the second morning the patient refused to lie and remained below 10, and then below 10, throughout the day. Patient was febrile when first seen and was with his head between his hands and with a completely blank expression on his face. Pupils were dilated but reacted well and the patient though rapidly subsiding signs and history, could easily be traced to narrow symptoms.

There were no abnormal throat, petechial or skin lesions, signs, but there were a few pustules on the front and sides of the chest. No normal pain during negative. In bed he lay on his side with knees drawn up and his breathing was effortless. Total leucocyte count at 11:30 was 21,000 per c.c.m. with 89 per cent polymorphs, and at 11:00, 20,000 with 80 per cent polymorphs.

Further petechiae showed increased pressure and tested hand with abundant meningococci by direct slide and by forty-eight hours culture, with count 12,000 per c.c.m. 70 per cent polymorphs, 100, or a total only.

In (16) symptoms was followed by restlessness and paroxysms with resistance to my interference and slight delirium, patient apparently taking out in a cephalic manner. Temperature 101.4° F. pulse 100, respirations 28. No rash, short or abdominal signs, or hand relaxation, having doubtful. Leucocyte count 12,000 per c.c.m., polymorphs 72 per cent. Further petechiae showed slightly tested and blood stained hand which contained numerous meningococci. The second leucocyte count at 10:00 gave a cell count of 10,000 per c.c.m. 70 per cent polymorphs and 0.02 per cent virus.

In (17), after the initial symptoms, the patient passed into a coma, extreme condition from which he could be roused only with difficulty. Temperature

100° F. pulse 54, respiration 11. Pulse almost completely remained below 70 until convalescence commenced. *Certhropsopel* feed was only slightly curled and anapnoea not. gas with some stasis, cell count 14,000 per c. mm., polymorphs 86 per cent., leucs 0.81 per cent.

Course of Disease.—In (A) response to treatment was negligible "severe" conjugal pain and retraction of the head not as followed by epistaxis (nose) head deformity and emaciation. The skin eruption showed transformation of the pustules into large blisters on shoulders, back and legs. Like temperature still normal and respiration by 24, pulse 126. The *certhropsopel* feed cell count on the second morning was 12,000 per c. mm., with 15 per cent. polymorphs, leucs not, but by the evening leucocyte punctures was performed only with great difficulty and the feed was practically pure gas with a total count of 104,000 per c. mm., with 92 per cent. polymorphs. A blood count at the same time: gas 15,000 leucs, gas per c. mm., with 85 per cent. polymorphs. Death took place after an illness of sixty hours.

In the other three cases response to treatment was very satisfactory and sustained. All showed marked improvement from the first antiseptic injection, the result being most graphic in (C) who previously was semi-conscious, but after recovering from the antiseptic was quite conscious and answered questions intelligently. Symptoms which slowly cleared from day to day included great constipation, present itching and burning, throwing all the feed eaten and requiring conjugal injection, continued vomiting, delirium, frontal and occipital headaches and growing pain in the post-cervical region with retraction of the head. Incurable was troublesome. marked weakness rapidly developed, the veins becoming so small that intravenous injections were difficult, and each case lost well over a stone in weight. Appetite was good after the first day or five days and there was marked feature. Decisive punctures on chest and another failed after a few days while mice (C) and (D) developed a couple squamous of a hair, joint, clearing up with saline and spring headlamps. In each case after twelve days a generalized cutaneous eruption appeared, clearing a good deal of eruptions for three or four days. Each individual and subsequent severe eruption was followed by a reaction usually controlled by salicylate.

The blood count which had risen on the third day to 1:400 14,000 per c. mm. gradually subsided to 6,000. The *certhropsopel* feed cell count dropped quickly from 92,000 or 10,000 per c. mm. to a few hundred with no leucocyte response and the rapid count rose to 6,000 or 8,000 per c. mm.

(B) and (C) discontinued their convalescence after five weeks and (D) after three weeks. Apart from back-pain, 80 to 114 subsiding to about 60 per cent. was successful and there have been no signs.

Treatment.—No harm is done by further punctures, carried out under sterile aseptic conditions and a number have been performed here for diagnostic purposes, as well as response treatment in a conjugal case in of previous antiseptic.

For (A) only such arrangements could remain isolated around, hence (B) was available which appeared to have no sedative influence upon the disease but the (B) (C) and (D) Larve Institute considered such management around (glucose solution between 170 to 175 was used) while from the satisfactory results obtained was obviously clearly homologous for the following organisms. In (D) the first three larval punctures were made and punctured particularly under normal local conditions but owing to the headache and aching pains in the limbs occurring during the rejection of the serum, a general anesthetic (J. R.) was given in all the subsequent larval punctures in this and in the other cases. It has every advantage: eliminating mental stress, allowing of proper picture of the patient for the operation, and increasing the flow of cerebrospinal fluid, as all effects were observed. In each case serum reaction was anticipated and checked by intravenous injection of 1 c.c. saline after the operation.

Good team-work is necessary where a considerable number of larval punctures are being performed to ensure satisfactory, smoothness with a constant watch on pulse and respiration, maintenance of patient in correct posture, observation of the rate of puncture when capillary field and evidence of delay when the intracranial pressure is reduced, etc. As the cerebrospinal fluid flows as constant beside the appropriate number of ampoules usually of 5 c.c. capacity stored in a bowl of water at 80° F., the syphon apparatus, taking care to avoid an air lock when the needle is inserted into the bulb of the needle. The last of the bulb is raised as it is steady as the serum is being very slowly run in, reduced pulse and shallow respiration being indications to temporarily stop the injection. Attention to the puncture wound is important, and by pulling the skin down or in one side such a different site is obtained. Dry dressings and dressings were found to be better than collodion which tended to irritate the skin.

Dry puncture may be reached by tilting the needle, turning the point, slightly withdrawing the needle and using the anesthetic, or by trying another site. Several times when the fluid was turbid or bloody, the canal was washed out with 40 c.c. of normal saline before the serum was administered. From 48 to 60 cc. of cerebrospinal fluid was removed at each puncture or until the rate was one drop per three seconds with the pulse good and was replaced by not more than 40 c.c. of serum by the same time from 40 to 44 c.c. of serum was given by a vein. In cases (B) (C) and (D) larval puncture was performed four times in the first forty-eight hours and subsequently daily until the cerebrospinal fluid ran clear, was culture-free from organisms, and contained over 900 per cent sugar.

As suggested by Surgeon Lieutenant-Commander Rowland (January, 1918) on the First Naval Medical Service (January 1918), intravenous glucose was found to be of much value in cases (B) (C) and (D). In quaternary conditions and given at night entered sleep, as much as,

that arrived there after reaching its value, it was asked for by the patients themselves. 30 c.c. of a .50 per cent. solution was given. 34 grams glucose in water flavored with orange juice, this being taken three hourly by the mouth.

Rectal glucose solutions were used but were practically always omitted. In any case, except the solution has passed into the blood, the rectal value of glucose by this means is extremely small.

Case	Age, sex, & time	Amount of glucose	Urea, g.	Urea, mg.	Urea, mg.	Urea, mg.
1-1	1	75 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.
2-1	1	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.
3-1	1	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.
4-1	1	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.	100 g. 10.

Diuretics and sodium bicarbonate, 30 gr. 30, four-hourly, was tried in each case but had to be abandoned owing to bladder irritation. Citrate was tried by sodium, sodium bicarbonate, 30 gr. 30, 4-10, and by sodium 1) in 400 and 2) in 1000.

A daily normal excretion was caused by sodium and paraffin, 1-10, and the drinking of abundance of water was encouraged.

A fluid trace of urine only was found in the urine during treatment.

The patients were kept supine absolutely flat for three weeks in a small quiet isolation ward with indirect light, and were not allowed to read, even when feeling quite well.

All persons entering the ward were screened and washed, and after the patients had had their accumulations removed from the skin when symptoms were stopped. Incidentally on some of the cases was a positive streptococcal toxin obtained at any time throughout the illness.

Insulin therapy was commenced as early as possible, but even in considerable the patients were kept extremely quiet.

I am indebted to Surgeon Captain P. L. Gordon for permission to record these notes.

INVESTIGATION OF CASES OF RENAL DISEASE

By Surgeon Lieutenant D. H. F. BATHAM, R.N.

THE production of this monograph is stimulated by work which I was and did while acting as House Surgeon to Sir William Osler, at the Royal Victoria Infirmary, Newcastle on Tyne in the autumn of 1901. I wish to thank Sir William for his kind assistance and permission to publish cases from his wards. This consideration will be appreciated by other naval medical officers who have had the good fortune to have worked with Sir William.

During investigation of a renal case records of —

- A. Hinton
- B. Ordinary physical examination
- C. Specialized examination

Whether, which sequence no vocal case can be said to have been exhaustively worked out.

A. HINTON

The "hot page" for a urinary case are: (1) Flow, (2) frequency, especially nocturnal, (3) character of the stream, (4) character of the urine. (Rural path is referred to two notes, viz. the landing signs in the road and behind, and the green, associated with pain and retention of the urine in the male and the labrum output in the female).

Rural tests is not typical unless the patient has unusual frequency of urination (according to straining) in the same phase.

B. ORDINARY PHYSICAL EXAMINATION

The "hot page" for examining any abdominal case are: (1) Tenderness (2) rigidity, (3) presence or absence of a tumor.

These also apply in a rural case, for a tender spot in the angle between the last rib and the spinal column, covered by the finger tip, is customarily a rural tumor. There may or may not be rigidity of the muscles covering the kidney, the latter may or may not be enlarged and tender. The routine examination should include the testes, residual volume movements, a microscopic examination of the urine and a pelvic examination.

C. SPECIALIZED EXAMINATION

- (1) Routine every examination of the urinary tract.
- (2) Endoscopic examination of a single specimen of urine.
- (3) Rural (urinary) test should always be done (the methods currently practiced in Mr. Wilson's clinic are described separately).
- (4) A cystoscopic examination should be done in a routine and usually water collection is necessary, the latter being a further stage of the cystoscopy.
- (5) Pyelography (either retrograde or intravenous) is now an essential part of the routine examination.

URINE COLLECTION TESTS

These comprise the estimation of the ordinary urine and of the urinary acid by the phenolphthalein test, and are carried out simultaneously.

The patient is given a mouthwash after which he drinks a piece of paraffin wax collecting his urine in a receiver held about 18 in. below him collected. The apparatus used is made by a firm in Baltimore, U. S. A., and consists usually of a porcelain pan and a graduated measure. Two color indicators of urine are placed in a graduated tube and made up to

the flask is 100 cc. with 5 per cent $HgCl$ solution. The whole is stirred with an agitator.

Two drops of a saturated solution of sodium carbonate are placed in each depression on the plate provided. Two drops of the mixture are now added to the centrifuge solution in the plate with the object of obtaining a brown tinge on the solution. If this is not obtained at first, more $HgCl$ must be added to the mixture until the reaction obtained. The amount removed from the mixture must always be replaced with $HgCl$ before a reading is taken. The normal reading should be between 55 and 60 on the Jaeger.

Phenolphthalein test.—One cubic centimeter of the above solution is injected intravenously immediately after the bladder has been emptied. 45 cc. urine from the bladder is collected at the end of one and a quarter hours. To the urine collected add 1 c.c. of a 10 per cent solution of $NaOH$ to render it alkaline. Mix well and a pink coloration will be seen. Take some of the mixture and put it in the tube of a Duboucq (Duboucq) colorimeter and compare with the standard colors provided. On taking the correct percentage add 5 per cent to the reading. The normal reading is between 45 and 50 per cent. Renal function is said to be poor when the reading goes over 51 and the phenolphthalein test shows less than 30 per cent.

PROGNOSIS.

This means the nephropathy within of the hollow part of the kidney, i.e., instead of the introduction of a solution, improvement in excretion. We give no prognosis in Vonleke and Von Lubbenberg in 1906, and later emphasize it in Hirsch of the Mayo Clinic.

Nephrography depends on the nature of: (1) a good x-ray plant.
(2) careful interpretation of the picture.

(A) *Kidneygram Nephrography*.—This is carried out by catheterization of the ureters via a cystoscope and the injection of a solution of sodium iodide, which has been found to be non-irritant to the kidney and is best used in strengths of 100 per cent. It must never be injected while the patient is unconscious owing to the risk of rupture of the pelvis of the kidney, and the amount injected must be governed by the reaction of the patient to the pain of distension. I have found that 15 to 20 cc. are usually sufficient unless there is gross dilatation of the pelvis and kidney in which case it may be run with an hypodermic.

(B) *Ureterogram Nephrography*.—This is performed by intravenous injection of a solution injected by Schering, Ltd., of London, which is excreted by the kidney and is superior to Kinetipex.

It is made freely in solution and should be used as soon as possible, i.e., within a day or two, providing it is kept in the dark. The solution used contains 35 grains and should be injected slowly at body temperature.

The x-ray pictures are taken immediately and again after an interval of 1 hour and 1½ hours.

Caution instructions to the one who examines of damaged liver function and acute or chronic cirrhosis.

IDENTIFICATION OF PORTALS

The rough anatomy of the kidney should be first appreciated before a pyelogram can be read intelligently. The kidney consists of two portions —



FIG. 2. Pelvis (L) (square at anterior iliac crest on right side of pelvis) (100 mm).

(1) Inferior portion, comprising the bean-shaped poles and three or six cylindrical calyces with smaller calyces issuing into these.

(2) Volar portion, consisting of the cortex and medulla, of which the latter projects between the calyces in cone-shaped prolongations having their base towards the cortex. Usually opening, the normal pyelogram shows cupping of the outer ends of the calyces, but after inflammatory change or back pressure this is replaced by 'back-bowling'. Due to erosion or pressure on the medullary portion.

Cow 1-44, part of April 11, donated to the U.S. National Marine Mammal Laboratory. The right mandible was cut anteriorly to the first premolar, and the right half of the end of the tongue, attached to the root of the mandible, was removed along with the right half of the mandible and was sectioned and stained by the usual means.



Year	Number of cases	Number of deaths	Number of cases per 100,000 population	Number of deaths per 100,000 population
1990	1,000	100	1.0	0.1
1991	1,100	110	1.1	0.11
1992	1,200	120	1.2	0.12
1993	1,300	130	1.3	0.13
1994	1,400	140	1.4	0.14
1995	1,500	150	1.5	0.15
1996	1,600	160	1.6	0.16
1997	1,700	170	1.7	0.17
1998	1,800	180	1.8	0.18
1999	1,900	190	1.9	0.19
2000	2,000	200	2.0	0.20
2001	2,100	210	2.1	0.21
2002	2,200	220	2.2	0.22
2003	2,300	230	2.3	0.23
2004	2,400	240	2.4	0.24
2005	2,500	250	2.5	0.25
2006	2,600	260	2.6	0.26
2007	2,700	270	2.7	0.27
2008	2,800	280	2.8	0.28
2009	2,900	290	2.9	0.29
2010	3,000	300	3.0	0.30
2011	3,100	310	3.1	0.31
2012	3,200	320	3.2	0.32
2013	3,300	330	3.3	0.33
2014	3,400	340	3.4	0.34
2015	3,500	350	3.5	0.35
2016	3,600	360	3.6	0.36
2017	3,700	370	3.7	0.37
2018	3,800	380	3.8	0.38
2019	3,900	390	3.9	0.39
2020	4,000	400	4.0	0.40

1. Suppose that the interest rate on the loan is 10 percent. What is the value of the investment? What is the value of the investment if the interest rate is 15 percent? What is the value of the investment if the interest rate is 20 percent? What is the value of the investment if the interest rate is 25 percent? What is the value of the investment if the interest rate is 30 percent? What is the value of the investment if the interest rate is 35 percent? What is the value of the investment if the interest rate is 40 percent? What is the value of the investment if the interest rate is 45 percent? What is the value of the investment if the interest rate is 50 percent? What is the value of the investment if the interest rate is 55 percent? What is the value of the investment if the interest rate is 60 percent? What is the value of the investment if the interest rate is 65 percent? What is the value of the investment if the interest rate is 70 percent? What is the value of the investment if the interest rate is 75 percent? What is the value of the investment if the interest rate is 80 percent? What is the value of the investment if the interest rate is 85 percent? What is the value of the investment if the interest rate is 90 percent? What is the value of the investment if the interest rate is 95 percent? What is the value of the investment if the interest rate is 100 percent?

1912, 1913 and in 1914 when appendectomy was performed without noted complications.)

Physical Examination.—Tenderness on renal angle on lumbar region; none on right side, lower and over bladder. No rigidity or mass. Urine normal.

Surgical Intervention.—(1) May 1911: small incision on line of right breast on pectoral (see fig. 1).

(2) Breast incision: midway area (3) phleboclaphoraphy on last (Fig. 100).

(4) Cystoscopy, October 27, 1912: general chronic cystitis; bulging over right ureters, surface. Ureters, catheter passed and obstruction noted on right ureter. (There is a calculus has been located on a ureter it is often



FIG. 1. Stone specimen (1911).

possible to buldge a 1/2 gallon, glass of catheter past it and withdrawing it together. This was tried on this case later but failed.)

(5) Pyelography: bilateral normal; right side shows thickening of ureter and a calculus on it (line 101) (see Fig. 2).

(6) urethrotomy: catheter, the obstruction was dissolved and tolerance noted over fig. 55.

Patient was told to move about and jump frequently to encourage to buldge the stone.

On November 25, 1911, cystoscopy was performed again to open urethra, where it was found that the stone had descended and was protruding through mouth of ureter into the bladder. The ureter was enlarged by dilatation via the cystoscope and it was hoped the stone would be passed per urethrum.

On December 3, 1911 the stone not having appeared, cystoscopy was

again perforated and once enlarged by means of a writer's nib. It was evacuated by a *Diglossa barroetensis*, and is reproduced on fig. 4.

Case 2.—Female patient, aged 34, was admitted with a history of twelve months' duration, during which she intermittently "got well" combined with attacks of nervousness, up to July, 1911. After this time she commenced having dyspnea, the pain commencing on right hemisphere and spread



Fig. 4. Transverse brain dissection, right hemisphere (D. R. L.).

down the sulci, into speech center and motor areas, so that the disordered hemisphere. Recurrent occurrence of a transient ischemic attack in November, 1911. Was also extremely ill during pain in the right hemisphere after (disorder) no abnormality recognized, appetite good and no loss of weight. Was a third attack followed in the same or later months.

Examination. Patient well nourished but pale. No signs of disease in mouth.

no abnormality. Slight tenderness on bimanual palpation of right kidney; no rigidity, but some muscle guarding; right kidney normal in height; some distal prominence of pelvis, but showed no abnormal urine showed presence of organisms, but no T.B.

Renal function: Kidney test, 20% phenylthiocarbonylurea test, 4 per cent.

Cystoscopy: General chronic cystitis, ureters unobstructed.

Pyelogram, retrograde: Some enlargement of right kidney with tortuous distal ureter.

Urethrotomy: Enlarged distal channel (head) of upper and middle calyces, right kidney; lower calyces normal. Efferent pole on right side.

Nephrectomy performed and large kidney removed from right side showing a condition of pyonephrosis (see fig. 4). Patient made an unremarkable recovery without any complications.

Summary:—From the foregoing which it may be observed that the pyonephrocal changes and infection as its treatment as a renal case may only be served at by a systematic routine, the greater part of which—and not the least important—may be carried out by the medical attendant before specialist methods are adopted.

In the more complicated circumstances, diagnosis has been rendered more accurate, and prognosis more definite, by the use of pyelography and renal-function tests respectively; and it may be definitely affirmed that in renal cases should be denied the benefits of pyelography whenever this can be done.

It should be noted that renal function in both cases is below par, as shown by the renal-function tests described previously. Despite this, however, these cases made excellent recoveries after operation, showing that some benefit may be derived in the interpretation of these readings.

Lastly, in the case of renal calculus (see Case 1), treatment seems warranted upon operation on this matter will hopefully render the procedure unnecessary through the dislodgement of the stone by natural methods.

THE BRITISH ARCTIC AIR ROUTE EXPEDITION

By General, Lieutenant F. A. NEWELL, R.N.

EARLY in 1930 an entirely British Expedition was formed and financed by private enterprise, under the leadership of Mr. H. G. Worsley, to go to East Greenland to find out if an air-route to Canada, via Greenland, was a feasible idea, and if so, to undertake the necessary survey and meteorological work there.

Besides being the shortest distance, by air, to Canada from the British Isles, this route has the additional advantage that the longest distance over the sea to any one stretch is 303 miles.

The route would be from Scotland over the Irish Islands Ireland and Greenland to the Cumberland Peninsula, down the Western shore of Hudson Bay to Port Nelson and on to Winnipeg.

The expedition was known as the British Arctic Air-Road Expedition and consisted of fourteen men, very few of whom had any previous experience of the Arctic, but all were hard and ready to learn.

My first knowledge of the expedition came from a signal asking for a medical officer to volunteer to accompany an expedition to Greenland. After long weeks of despatching I suddenly found myself appointed and living in a whirl of shopping and interviews as there were just business days in which to get together medical stores and a personal outfit for a year in the Arctic. The money question was made simple as the Admiralty kindly lent the required amount.

It was with a profound sigh of relief that at last I found myself on board the *Quest* which had been chartered for the trip, on Sunday morning, July 6, 1900, ready to all requests for me.

The *Quest* (Captain Scheldroppe) looking greatly overloaded, stepped out from St. Catharines' Dock near the Towns Bridge that Sunday morning about 10.00. Dock space was limited so besides the Norwegian crew of ten, there were thirteen members of the expedition on board not to mention the many friends and relatives making the trip to Tilbury where we were met by Mr. A. Constanble's yacht. Passages on board which we were all entertained in lunch.

The trip down the Thames was anything but a quiet one despite being a Sunday morning! It was a continuous collection of answering various blarney lawsuits as we passed ship after ship, but at last we were clear and proceeded up the East coast in fine weather.

Our first stop was at Plymouth and, judging by the enormous heterogeneous purchases of individual members whom it was just as well. The *Three Islands* were reached on the night of July 12.

In the darkness we knew that we had arrived in the right place by the frantic howling of about a hundred three pack of wolves as full cry. This came from our dog dogs, all strays who were packed in a large lighter about lying in the water and not allowing them to land.

Here also we were met by J. M. Scott, the Norwegian member of the expedition, who was in charge of the dogs, having gone in the next mail of Greenland some months previously to buy and transport them to the *Quest* so as to meet us.

Forty came around a particular number, to us, but this was immediately explained by Scott who described how one dog had escaped ashore, and going mad, started eating hares amongst the local sheep. The result was a hunt headed by Scott with a rifle, and supported by the reindeer to us and so the final destination of the dog after a forty eight hours cooking chase.

We spent two days at the *Three Islands* anchored just off a whaling

stitches where we were able to get some interesting photographs, and more important still, a large quantity of dog food.

The dogs were taken on board and took up their quarters in a large pen on the west deck. Our deck space was now more limited than ever as we already had all the timber for the house below and no compliance in parking cases, besides an enormous pile of oilskins on deck.

We now got to sea looking a most peculiar sight, as all our rigging was covered with 8 lb. lumps of whale meat drying to the sun.

Four successful days brought us to Korymbak, where we again landed this time filling up every available corner, even raising some 98 logs on the hold directly on top of our cargo. During this performance the dogs lived all while they ran, much to our surprise, but we have improved our living quarters.



THE DUTCH ARCTIC ANTARCTIC EXPEDITION

Our second evening at Korymbak was, on starting off on the last leg of a journey which many of the party would not be sorry to see over.

Suddenly at 4 p.m. on July 26, we awoke with a start to an unexpected silence, and making the engines had stopped we rushed on deck to find we had reached the ice which as an outer edge seemed to be a calm expanse of small leads on, but soon we passed through this and were on the brink of it. One soon became accustomed to the crash of the ship when boring through narrow places and the creaking and groaning when wedged between bits of pack ice extending far away on either side. Captain Thordrapp has proved himself the master of the ship for which he is known, choosing from his vantage point on the mainmast his eyeing route for an advance of the ship's slow progress, so as to avoid having to approach too closely the too many icebergs which are liable to meet these expeditions at any moment and having little, much to them anything within their reach.

While in the ice we shot seals to avoid belly work. In this line they have taken to reaching the shore from the ice edge were not made. There we then were had a good supply of fresh meat both for the dogs and ourselves.

We were escorted onto the land, where stands the Danish settlement at Angmagssalik, by a fleet of kayaks, or narrow single water-borne runners, and here we spent two days gaining useful local knowledge and obtaining a native pilot to assist us on our search for a suitable base site. This was accomplished after about twenty eight hours steaming about the coast and lands searching for a place, not only suitable for a house but also for wireless and from which we could reach the island as readily as possible.

Once the site had been selected, no time was wasted in getting the stores ashore. Night and day parties were organized so that work went on



Fig. 1. Qajaqs.

unceasing. First to go ashore was the teacher for the house but on a quick inspection no parties started work immediately.

Everything had to be ferried ashore in whale boats and carried up the rocks to be safe from spring tides. Among other things, eleven tons of coal for winter use had to be filled into bags and taken ashore in a heavy cartwheel to the hut. Eleven days was the complete cargo ashore and the hut ready to be occupied.

One seaplane, which had been unloaded early, did its first flight with complete success on August 3 but then one month after leaving England.

During this time I had an opportunity of making an interesting trip. The second Danish Government ship had arrived at Angmagssalik with an offer in need of medical attention, of which we were informed by wireless.

We took our line in a whale boat with two outboard motors attached

and travelled all night through the ice with Captain Scheidegger as pilot and arrived early the following morning. We were able to push up a good deal of ice brought for us and to return the next day. Two days later the ship brought us the balance of our stores and we were complete for the year.

There was, however, no reason as our leader was nothing of an engineer. His immediate plans were that a party of five should start at once to establish a meteorological station on the inland ice. The place selected was a vague spot about 150 miles inland with an altitude of about 5,000 ft. which, from rough contour lines supplied by a previous crossing, should be the highest point on the proposed air route. Meanwhile the *Quest* was to steam north for about 200 miles with the rest of the men and they were to work south along a survey of the coast-line using motor-launches with the *Quest* as a base. The aeroplane, also using the *Quest* as a base, was to do aerial photography in conjunction with them. One man was to be left in charge of the base.

No sooner had the Danish ship left than preparations began for the next day's journey.

On August 20, the dogs necessary for four teams were collected from the island on which they had been dumped on arrival. They were then put on whale-bone and towed by the *Quest* when she took the complete party and the necessary stores up the fiord to the foot of the glacier up which a route to the inland ice had been projected.

The dogs in these days were not so easily managed as they became later. They had become rather wild while left in their own kennels on the island.

The dogs and stores were hauled and all hands started in to carry the necessary stores up a steep rock mountain about 500 ft. high to the edge of the glacier where a dump was made.

The continued work late in the evening when we went on board for a well-earned sleep which, however, ended at 4 a.m. when again all hands tried and took the necessary loads and the dogs to the top. There good-byes were said and five of us (Søren, Rydøl, Røby, Lashway and self) were left with a vast pile of boxes, tents, ropes, harness, sledges, etc., and numerous wild horses which we were hoping to drive in the near future.

The rest of the party remained on board the *Quest* to maintain their journey north and were soon out of sight.

In a surprisingly short time order was restored from chaos, loads were apportioned and packed and we were almost ready to start. There was, however, one essential duty to be performed. In the summer the snow melts off the glacier so and the surface consists of deposits of loose-like ice-berries which would in no time cut the dogs feet in without, and so dog loads of strong staves or real timbers, for which every morning and evening at night before they freeze hard. At last we were off.

The going on the glacier is extremely rough and uneven, causing many

upright so that on places all loads are loaded on each ridge in turn to leave it over hauled. There is one very high and steep bank on the trail where the phans there were a cliff, and up this hill loads must be man-hauled so the dogs cannot get a grip for their feet. The crevasses also complicate the going and on places the sleds must first be dragged out by men going ahead up on line and flagging the course, so many of the crevasses are crossed by a thin bridge of frozen snow.

However, when all crevasses were passed the going became much easier and an average of one sled per day was maintained although our loads per sleds were 750 lb. A large dog was needed after we had passed the last crevasse and this spot was also made use of as a dump and starting point for later journey.

This indicated spot was reached at seventeen days and there we spent



Figure 1. Camp site.

eighteen days, while the crevasse bridge was passed and the snow taken to its position.

The house consisted of a double-walled, igloo-like shaped tent, stretched over a dome-shaped frame of wooden ribs. The entrance was through a tunnel leading to a hole in the front apex, this was the only air inlet, and the outlet was through a small hole in the apex.

Boys and Landry were left here with some wooden food and the meteorological instruments, while the rest of us started home. Working with good surfaces and having light sledges, we were able to do an average of 50 miles a day, reaching the base just twenty three days after leaving it.

We only had one hold up on the journey. Long before to do a last try, we were pushing on through the crevasses in the dark, when suddenly the leading team disappeared down a deep crack. They were however, rescued after a couple of hours' work, and camp was made with all complete.

1 to 21 feet) (16 of which would not be cut place. Much was, and thought went to their completion. Each ration box consisted of the following:—

(1) 7 lb. of pemmican, (2) 3 lb. of pea meal, (3) 2½ lb. of oats for porridge, (4) 2 lb. of sugar, (5) 10 plums or berries, (6) 1 lb. of plum or raisin jam, (7) 6 lb. of chocolate, (8) 2 lb. of marmalade, (9) 7 lb. of Blandin's compound, (10) 2 small tins of Bickell's tablets, (11) 1 tin of condensed milk plus yeast powder.

The ration box packed in a light but strong thermopy bag just the weight of the sledges.

Each box was originally intended to last two men for one week, giving each man 5000 calories per day, but we found we were quite satisfied when making one box last three men for a week and so were able to do



FIGURE 1.—Sledging in the snow.

large quantities of food for the dogs and sleds. In addition to these, each man had a small tin of (1) condensed milk, (2) a small portion of concentrated fruit jam in the case, (3) when there was time to melt some more for a drink.

These rations were severely tested when Courfield spent five and a half months on half rations and living almost entirely in the dark. He had no trace of misery at the end of it.

The dogs got 1 lb. of dog pemmican per day, which was given them in the evening when their day's work was finished; they kept amazingly fit on this diet, which was occasionally supplemented with a little fat. The much praise could not be given to these stout-hearted creatures who, although complaining at the extreme of hunger now, nevertheless, were dependable and "made a brand" indeed—without them the work done by the expedition would have been impossible.

On arrival at the base, we found Williams and D. Keith had returned the previous day by air, having completed the air photography of the 200 miles of coast and then left the rest of the party to work their way down, putting together the blocks.



Fig. 100.—Dry lake.



Fig. 101.—Looking southward by the

Preparations were started immediately for the next morning, and two days later we started down again.

The Quetz' arrived back the day before the start was made, and so we had help with getting our teams up the glacier.

Williams, Scott, D. Keith and self started for the meteorology and station, where D. Keith and self were to observe the pendulum, while Williams and

South-west to land north for 180 miles along the coast-line and then heading for the west coast to cross the divide of the world's mountains back to the sea.

Our party was overtaken by Royal and Chapman, who were taking mine stores to the station and accompanying Peary and Lindley out.

This night on which we arrived at the station there was indeed a crowded house, but three days later now Dink and all alone with our statements, the others having disappeared north and west respectively.

Like all the others though having had no companions. The amazing rapidity of the temperature changes, considering our surface surroundings was a source of constant wonderment to us. Our entry on my diary for November 15 reads: "Temperature at 9 p.m., 11° F., and at 10 p.m. 19° F."

The observations were taken every three hours by us alternately. One had always to be sure to bring a spare candle as it was often necessary to dig one's nose out of the tunnel two or three times a day. When the weather was clear the principal recreation was digging races and throwing a ball round the house to form a courtyard in which one could walk sheltered from the wind. Unfortunately it also acted as a trap for drifting snow, and so was instantly in need of attention.

We also had an Eskimo come home over our tent, and the resultant improvement in comfort was immense. Every day now the light growing less and less until only the 11 p.m. observation could be done without using a torch.

After two weeks we began to look for our promised relief and to commence a little of our work. However it was nine weeks before (one night about 4 p.m.) we suddenly heard very outside of "Goodbye friends!" and realised that the relieving party had arrived.

It was December 11 when Chipman, Constantin and Wager crashed as after a severe trip. We had been assured that sledges on the ice-cap between October and April was impossible—however, here they were. They gave us the outside cover and told us how we sledges had started with the idea of bringing a large supply of food to the station, but travelling and weather had kept us and now there had in turn back owing to shortage of dog food, and even then the other three arrived with only one dog sled and no team.

Two days were spent in visiting the travellers regarding sledges and debating what to do about the station. There was not enough food to have two more so it was obvious that the chance of relieving the station for months was practically nil.

Constantin very generously insisted on staying alone. We left him every available thing possible, and knew he could survive for six months on half rations.

Luckily for us there were a few tons of dog provisions and some spare man provisions at the station which gave us seven days' dog food on half rations.

We wished "A Merry Christmas" and started for home on December 7 on brilliant moonlight and on a temperature of 21° F. December 18 was an arrival at the Big Bay, previously referred to where we found the lone pup had left us a large (4) dog food. That night three great animals lay down close but stretched—poor fellows! There was, unfortunately no more food as we sampled some dried fish intended for the dogs; it was scarcely appetizing, especially as we had collected it from the Quetz some months previously and some in confusion then, however we made a hearty meal and afterwards enjoyed a cigarette, of which we found a few in the dump.

Next day we reached the coast, but while still in the cove saw the atmosphere not promising for us with food ready to drop. It appears it was the first day the food we would have sufficiently to be the complete take off effect, as the constant likelihood kept breaking the rarely formed ice.



FIG. 1. Looking for food.

We were finally 200 ft. below right to the land ice, and the tide never broke up again until spring.

The next day of interest was Christmas to which we had all been looking forward! But what time, and a good number of 20° F. below. I was unfortunately, enough to make it as I had been aware, to the detriment to see a patient by report and found it impossible to return for a week.

During the following two months our time was usually occupied locally. Food hunting was a question for fresh food for ourselves and the dogs. When the Russians showed up here to catch the Greenland duck through holes cut in the land ice. Again we got a fine supply of them by blowing holes in the ice now, which was some four feet thick.

There were local survey jobs to be done and no supplies to be moved which had been badly damaged in a blizzard, all our clothes were in very

been exposed had to be rebuilt—new barometer and transit were needed and so on. Altogether we were not able especially as an army, available opportunity spent, journeys were made into the Big Flap, establishing a camp for future journeys.

It was during this time that we got to know the Siamese and to learn something of their habits, but time and space will not allow me to go into all these details.

The first trip to be attempted on the morning was when Scott, Leach, and Eiley started at the beginning of March to return the station; they were closely followed by Stephenson, Chapman and Wager who were to dodge north to Bangkok; and then Fred and myself the same evening returned from the route which the Quail camp had shown on the mountain from the outside.



FIG. 1. Siamese natives.

Scrambling up the mountain side to reach the station before they were actually forced to surrender to the Siamese, that they had no other alternative (except of course to allow them to take the proper position). The natives quite understood the latter object that more than half their number could remain behind they had a more vivid of their demands and were forced to return.

During March, when Scott's party were on the morning actually by, as we left in England for the safety, and we received many supplies from them. When they returned, we could scarcely believe it.

Meanwhile, Reed and Chapman left some supplies with local natives, and supplied and meeting with them (though the weather had very little difference remaining, in the case of the latter, it was still a small one).

In the meantime, further attempts were being made to send help to the English, which consisted in a long journey to the base where

unsuccessful flight. It is old history how he, on his second attempt, found Wadden's party returning with Charfield.

Last government's dispatching a small weather party, consisting of Stephen and Wagon and self, out for Mount Forest, with the object of recovering and if possible striking it. This mountain, which is a magnificent head mark for flying over this part of the country, was thought to be higher than Fetteren Peak, which was the highest known mountain in the district. The weather by this time had so much improved that we were able to reach Forest, a journey of some 160 miles in seventeen days. Our camp, placed at a high level nearly at the foot of Forest, was over 9,000 ft. above sea level.

From this base, Stephenson and Wagon attempted to climb Forest and were able to get within striking distance of the top but were defeated by the enormous overhanging ice domes.

A survey of the district and a map of the glacier arrangement running off towards the south was made. Forest was found to be 11,500 ft. high, leaving Fetteren by, I think, 2,000 ft.

On our journey to Forest we observed some of Charfield's sled dogs, a note dropped from the aeroplane which pointed us on their way out.

The plans for the future included two attempts of Charfield and a motor boat trip down the east coast round Cape Hornell and on to Fetterenhead, while the remainder of the party were to remain via the usual South coast.

The first trip to start was when Scott, Stephenson and Lindsay left the base on July 1 on their way to Fetteren. This trip was a complete success, the members visiting a boat from the west coast being the first to arrive in England.

All day by this time was gone from the birds, and we were able to live on both colonies and other things entirely! Thus we caught merely with our feet also with fly when there was time.

The main revelation of these at the base at this time was learning the use of the Fetteren boat. This had always been said to be impossible for a European, but many of the expedition completely contradicted the old and were able to go off well hunting on them with the natives.

The two last parties could not start on their journey until the Danish ship arrived with some necessary stores, so on August 9 we, who were returning by ship left the base in the district East, leaving behind two members of the expedition, and were we were in many ways to see the coast of Greenland, finally disappearing below the horizon.

Soon after our departure Rydell and Thompson set out to cross the island so far to observe taking with them their traps and rifles, so that on reaching a bay, to be on the west coast they might make the rest of the way by boat and land for their food.

About the same time Wadden, Charfield and Lemon set out on two whale boats with numbered parties to reach Fetteren, which was Cape Hornell.

After an adventurous trip they finally got through, only to have on arrival that Bryant and Stamp go with overhauls, and so Whitten and General went up to Halesworth (?) with the intention of searching for them. Luckily this was unnecessary, and all returned safely by Danish steamer, thus bringing a most enjoyable and, I believe, highly successful expedition to a most satisfactory finish.

SYSTEM ADOPTED IN THE RECORDING OF SYPHILIS CASES IN THE V D DEPARTMENT, H. B. BARRACKS, PORTSMOUTH

By *WALTER COMPTON F. V. D. H. B. BARRACKS, H. B.*

The object of this article is to describe the system—and the instrument—carried out in the recording of syphilis cases. For convenience of discussion the paper is divided into sections as follows:—

- (1) Books and Forms in use
- (2) Ratings (rating depot with a record of syphilis)
- (3) Cases of syphilis undergoing courses of treatment
- (4) Cases of fresh infection
- (5) Ratings suffering from syphilis appropriated for death

Books and forms in use are discussed first, as it is essential to know something about them in order the better to appreciate what follows.

BOOKS AND FORMS IN USE

- (1) Day Book
- (2) Weekly Health Record Book
- (3) Women's Health Record Book
- (4) Disposal of Cases Discharged from Hospital Book
- (5) Quarterly Nonological Returns Record Book
- (6) General Case Card (No. 316)
- (7) Women's Test Paper (M. 36)
- (8) Weekly Health Report Form (No. 328)
- (9) Drilling Room Form (M. 314)
- (10) Quarterly Nonological Returns (M. 150)

All the above books and forms are common to syphilis, venereal and gonorrhoea.

The following are also used in the recording of syphilis:—

- (11) Syphilis Cases Undergoing Courses of Treatment Book
- (12) Record of Courses of Treatment Book
- (13) Monthly Recommendations for Courses of Treatment Book
- (14) Stopped Death Book
- (15) Special Venereal and Syphilis Record Sheet

- (16) Rough Examination Book
 (17) Tests for Case Record Book
 (18) Interrelation of Agreement Cases (V 41)

DESCRIPTION OF SPECIAL BOOKS AND FORMS IN USE

In the compiling of these special books ordinary forms books are used. The type of forms book employed is noted after the title of the special book. In designing the various books and forms the flexibility of the columns are maintained but the constant openings are not given.

DEATH BOOK (B 181)

Used for the recording of all death cases of infection, cases placed on the sick list or discharged to hospital.

The pages are stapled up as shown below. Two cases are entered on each page allowing sufficient space between each for notes on progress of case and final disposal.

P V D

REPORTS

PROVINCIAL

STATE

COUNTRY

DEPT.

DATE

REPORTING

NAME

ADDRESS

REPORT OF CASES DISCHARGED FROM HOSPITAL (B 182a)

This is a record of all cases of venereal disease discharged from hospital to Dept. The object of the book is to avoid any possibility of future necessary treatment or observation being overlooked. On using the book the R. G. special notes in the disposal column the further disposal of the case—i.e. whether placed in quarantine, recommended further tests or treatment, or put in duty. Columns are ruled down each page thus—

Name Rating Risk Discharge Disposed

The page is headed by the date

WORKING RECORD REPORT BOOK (B 182b)

This is a record of all death cases of venereal disease and their complications treated in hospital, or passing hospital and discharged to hospital. It is intended as a permanent record and for the purpose of making out

the individual's suggestion for quarterly publications received. Comments are noted in the space immediately below each recommendation.

1st Page column 10 will give name, 11 Sex, 12 Age, 13 Rating, 14 Proposed Treatment, 15a and 15b Date of Discharge, 16a Recommended Treatment.

2nd Page column 10c.—Date selected. Psychiatric and Social History, Summary of substance (qualitative or quantitative) Taken, Drink, Dental or Other.

WATERMAN'S RECOMMENDATION BOOK (A, 1934a)

Here are recorded the results of all Waterman's performed. It is a permanent record and is used for compiling the quarterly neurological records and checking entries in individual case cards. Each page is ruled into columns thus:—

5 B No. Name Rating 10 Sex Date taken Result.

RECOMMENDATION BOOK (b, 1934a)

After a compilation of recommendations are noted in this book. This is because that all recommendations are carried out. As each recommendation is carried out it is ruled off. Each page is ruled into columns thus:—

Name, Name Rating, Date Recommendation.

It is used also for compiling the quarterly notes or record book.

RECORD OF TREATMENT CASES (D, 1934—Tb, 1934)

All cases, whether chronic or epileptic, undergoing work for cure are noted in this book. The result of test with final disposal, is then recorded. This book is kept as a permanent record. Each page is ruled into columns thus:—

Name, Rating, 10 Sex, Status and Result of Test, Disposed and Date.

It is used for compiling the quarterly returns record book.

MONTHLY RECOMMENDATIONS FOR LECTURES ON THERAPY (Q, 1934)

After a consultation, should a case be recommended for a course of treatment at some future date, his name is entered in this book in that column which corresponds to the month in which the course falls due. This means the name's future treatment not being overlooked. Each month the book is carefully perused and all men due for courses are checked up. Should they have left depot inquiries are made at the dealing office and his disposal is noted opposite his name in the monthly column. This book is divided into twelve columns corresponding to the months of the year. Each page is ruled into columns thus:—

5 B No. Name Rating Name 10 Sex Recommended Remarks

recommendations on completion of course. It is a record of each individual specimen given, stating date of specimen and dosage, and it is for compiling the quarterly returns record book. A stamp is used in the time of a table on each tablet being stamped on each page.

STANDARD FORMS

This book is in general use and it is used for the entry of all "stopped draft" cases whether medical surgical or venereal. All syphilitic cases undergoing courses of N & B treatment or tests for same are stopped draft.

QUARTERLY RETURNS RETURN (Q 189)

In the compiling of this book the following books are consulted —

- (i) Day book
- (ii) Recommendations book
- (iii) Tests for cure book
- (iv) Record of courses of treatment book
- (v) Weekly health records
- (vi) Venereologist results record

It is purely a book of statistics and the records are mainly tabulated. The following are the subjects with which these tables deal —

Table 1—Observed and syphilitic, numbers of notifications in each district, nature of recommendations.

Table 2—Is complementary to Table 1, giving the results of the tests, with further recommendations.

Table 3—Deals with syphilitic cases undergoing courses of treatment, numbers undergoing various nature of courses (total numbers of N & B and second). Reactions of any.

Table 4—Deals with fresh cases of infection of syphilis observed and given birth to, also paraventricular, also paraventricular.

Table 5—Supplements Table 4. It deals with the course (positive or negative) and time of infection.

QUARTERLY STATISTICAL RETURNS FORMS

These consist of three sheets —

Sheet 1—(a) Tables 1 and 2, as quarterly returns record book.

(b) A table of total numbers attending for courses of treatment (total cases given (a combined course of N & B and second N & B only, second only). This table is divided into two sections. Section 1, cases returning from last return, section 2, new completed courses and cases to be carried into next quarter's return.

(c) Total number of N & B given (including paraventricular specimens), total number of second specimens given, reactions or complications of any.

Sheet 2—Consists of Table 4 as quarterly returns record book.

Sheet 3—Consists of Table 5 as same book.

SECTION 1.—GENERAL PRINCIPLES AND SYSTEM OF RECORD-KEEPING

(This is referred to as the Special Record Sheet.)

All birth cases of syphilis infection are entered in this sheet. In all cases of infectious full-papules, etc., of the same category, the date of onset the venereal case card—S 574 or M 131. By this means, during a circulating case one can see at a glance the progress of the case and the entire without waste of time, as a more accurate degree of infection transmission.

The sheet is kept on the desk as a permanent record. Further notes, being added to it as infection arises. The sheets are stored in alphabetical order of patient's name in a folder equipped with separate compartments being reserved for those sheets of patients who are considered cured.

The sheet is of the same size as a medical history sheet and is divided into eleven sections tabulated as follows:—

Section 1. Particulars of present case—name, etc.

Section 2. History of infection.

Section 3. Tests on admission.

Section 4. Diagnosis—present and past.

Section 5. Consultation.

Section 6. Recommendations.

End page. Section 7. Treatment (only total dosage given during a course as part of a course to be entered).

Section 8. Reactions or complications as a result of treatment if any.

Section 9. Wassermann results.

Section 10. Results of other tests.

Section 11. Final discharge.

SECTION 2.—HANDLING WITH A RECORD OF SYPHILIS TREATMENT

(1) On their arrival in depot, medical history sheets and other medical documents are carefully examined by the medical history sheet department. All such documents that have a record of syphilis or diagnosed with no relation to the effect that the rating concerned as "Classified Card" are referred to the V D department.

(2) All referred medical history sheets and venereal case cards are carefully reviewed by the V D specialist who then records all particulars of the case on to a special record sheet.

(3) The ratings are then checked up for consultation.

(4) During the interview the rating is given, each case and any further recommendations are noted on the special record sheet.

(5) These recommendations, the results of the consultation are then noted on the recommendation book.

(6) Should the rating be recommended for —

(a) *Test for Cure*—On results of test being received the rating is checked up and a new interview. Results of test is noted on special record

attendance and interest, etc., and record is maintained. Special meetings for discussion of the book, (4) In fact the record is the principal basis upon which progress is reported to the committee.

(c) *Further Progress*—Since all the cases in a course are recorded in the "Progress and Keeping Record of Treatment" book, should the book become too bulky during a course in the "Monthly recommendations on treatment" book, and also recorded in the special record card and summary card.

(d) *Further Cases*—These are noted on special record sheet and added to the book. However, it always interfered so much of time that it was abandoned on account of the nature of any further recommendations. It is not possible to the importance of attending regularly for tests or treatment and it is waiting to be taken up.

Section 4—Course of Further Discussion Course of Treatment

In all cases a finished course of N.A.B. and record is given when complete.

(1) Before course is begun. (a) Full particulars of case being treated are noted on special record sheet, the patient is interviewed. He is informed as to the importance of regularity in treatment and book, why a completed course of N.A.B. and record is being given and when to attend during day of operation.

(2) When course book is given.

(3) Before course book is given or carried out, book, notes and general book.

(4) During course. (a) Should When course is given, further tests are carried out weekly until the course becomes regular, otherwise the When course is given is noted only in the beginning and one week before the completion of the course.

(5) When operation is given is noted in the "Progress and Keeping Record of Treatment" book.

(6) On completion of course. (a) Final stage of treatment given, tests done, results and complications, if any are noted on special record sheet, recorded and record of course of treatment book. Any further recommendations are also given.

(7) Patient is again interviewed and informed personally as to further progress, when and recorded of the importance of attending regularly for tests or treatment.

(8) Course of N.A.B. or record is noted in medical history sheet. The "Progress and Keeping Record of Treatment" book is not employed. The working "N.A.B. record" is not used as there are times when N.A.B. is given when the patient is not affected with syphilis. Further, "N.A.B. progress notes" are not used as a secondary reference material.

Section 1—4 very far from being new

(1) *Discharge*—A case is regarded as *discharged* only by the clinical appearance of the case or merely by one patient's report and strong positive Wassermann reaction (the reports vary in reliability). A case is only regarded as *discharged* when the Sp. pallid. is found in the state of fading stage when the Wassermann is positive and the patient has been unambiguously confirmed by another.

(2) *The booklets*—(a) Full particulars of cases are entered in the day book, weekly health record book and special record sheet.

(b) Sp. pallid. examinations and Wassermann tests done.

(c) Weekly health report (Form B-199) completed and forwarded every Monday to the civil health officer.

(d) On first discharge to duty or to hospital, case is noted in the day book and on medical history sheet. The medical case card and special record sheet are brought up to date.

(3) *Disposal*—(a) Cases belonging to outside ships or establishments are discharged to hospital (I.P.O. 546), so also are officers, stevedores, officers, cook and ship's sick ratings (K.R. and A.I. Act 546 clause 3). All other cases not treated in the sick bay are *disposed*.

(b) H.N.B., H.N.V.B. and H.P.B. note the following regulations: H.N.B. Act 61, H.N.V.B. Act 389 and H.P.B. Act 14 and 67. Should such cases be sent to travel they are *discharged* to hospital.

(c) All returned cases discharged to duty from hospital are referred to the V.D. Department; they are entered in the "Disposal of cases discharged from hospital" book, and their further disposal noted in the disposal column.

(d) Before a patient is finally discharged to duty he is interviewed and instructed as to any future tests or treatment recommended.

(e) Should a rating be discharged from or leave the Service whilst he is still suffering from syphilis, particulars of his case with tests done and treatment given are noted in the booklet, International Agreement (N. 44), which, when completed, is given to him.

Section 2—RATING, SEVERITY, AND SERVICE DISCHARGE
AND DRAFT

(1) When in doubt the drafting medical officer refers all such cases to the G.O. specialist for decision.

(2) Vols drafting regulations, Article 36 and 37 paragraph 1.

(3) Ratings approached for draft to Australia, New Zealand and Canadian Forces note N.A.N. Representatives' Letter 41/42a and A.P.O. 289/23.

by 50 per cent. It is concluded that under this card index method one workman only would be necessary to prepare the return for a whole hospital.

METHOD

The cards are prepared for each patient on admission. Card "A" is used as an alphabetical card and supercedes the alphabetical book and is entered in the alphabetical drawer. Card "B" is used, together with the bed ticket in the ward or department, when discharged, until the patient's discharge from hospital. On discharge the diagnosis only is completed and retained by the medical officer, and the card returned to the neurological workman who completes the date of discharge, number of days sickness and disposal, and signs the card neurologically in the appropriate drawer. Card "A" is also dealt with at the same time being completed and transferred to the alphabetical drawer. This action is all that is necessary until the end of the neurological period. At the end of this period the cards relating to all patients remaining in the hospital are called in from the wards, the diagnosis having been completed and retained in all cases. The number of days sickness only should be entered in one column a few days frequently across the appropriate space and the rest stored with the remainder. The return is then compiled by simply counting the cards under each heading and abstracting from them any other information required by the return. After completion of the return the cards of the patients remaining over the end of the period are returned to their respective wards and are dealt with in the ordinary way thereafter. The red ink notation of "days sick" ensures there being no mistake in cases returning from last return.

In cases where the medical officer requires notes or a return to be made on the return, such notes or returns are written in the bed ticket of the patient concerned, and a notation "with us" being noted in various returns the card "B" on the patient's discharge from hospital. This ensures the neurological workman including the necessary information on the return. It saves the use of the "General Case Book" and keeps under one cover all available notes on any one case.

Separate returns are required for various classes, viz. Officers and Men R.N. and R.M. Officers and Men R.A.F. Officers and Men R.A.I. Officers and Men of the Army, Discharged, Civil Employees and Hospital Staff. To facilitate the compilation of these separate returns and to obviate the use of several drawers different coloured cards are employed for each class. They are all stored in the same drawer and are easily distinguishable and designated when the returns are being prepared. Suggested colours for these cards, which are stocked at the Stationery Office, are white, red, blue and yellow.

The method mentioned here is suitable for a hospital, but it may require a little modification to meet the requirements of a general depot or

SOME NOTES ON THE DIAGNOSIS AND TREATMENT OF
INFLAMMATION IN THE EXTERNAL AUDITORY MEATUS

By GEORGE FRYSTADT, M.D., AND J. R. BIRNIE, M.D., F.R.C.

Proctitis is only by the recognized type of inflammation of the external auditory meatus seen in the human system, usually caused by an infection, is generally seen at home but frequently met with at Orona and the E. Indian, which defines a limitation of the extent to which it may occur, except in those cases where it is necessary to a complete chronic suppurative stage which when it is late the process is also confined to the surrounding structures.

PATHOLOGY

The diagnosis of both in the external auditory meatus should not present great difficulties: the condition most frequently occurs in hot weather, when in those who are better, and particularly amongst those who are subjected to "dust" or "oil." These men after bathing and when the source of a tumor or hemorrhage is a condition for this purpose.

The external features of the meatus in general, then, consist in gradually growing progressively worse and increasing the patient's sleep. Despite this, the heat and the heat of the meatus may be a very little then discharge. These are not, however, only a valuable differential point from acute otitis media, which is characterized by a discharge of a purulent nature, but in addition the patient always looks and feels ill, and there is generally though not always a profuse discharge.

Pulse and temperature give little assistance in the differentiated diagnosis, in fact hyperaemia may give a higher temperature and pulse rate than a simple, uncomplicated, inflammation.

The diagnosis must be made by examination of the ear with a good speculum and in a good light.

When bacteria present there is always pain on the slightest touch of the probe, such as is usually made in an effort to distinguish, and the external meatus before introducing the speculum. The patient objects to the introduction of even the smallest speculum, meatus probe or force of the condition being felt.

It is the exception rather than the rule to be able to feel a hot actually pulsing but not even rarely always found a particularly tender spot projecting into the meatus of the meatus. This area will always be found in the meatus (usually) fixed of the meatus, and so to be distinguished from that region of the end of the meatus which occurs at the inner end of the meatus, where in the detached or cases of necrosis.

A satisfactory view of the detached or detached is often in fact, however, because the meatus is smaller and the patient feels the pressure of the speculum too great. In those cases where it can be seen, the detached is covered with whitish epithelium and debris, but is otherwise normal.

In fact, having in normal or nearly so, whereas in inflammation considerable tissue is not found at a greater distance than three or four feet. The meatus has been not only of much value in differentiating the condition, but in addition as a rule and from examination carefully, increased in both depth of canal, the marked difference which occurs in the appearance of the meatus and the meatus of the meatus, which occurs in the appearance of the meatus and the meatus of the meatus.

The following additional points must be distinguished in the differentiated diagnosis of the meatus of the meatus, which occurs in the appearance of the meatus and the meatus of the meatus. The meatus of the meatus, which occurs in the appearance of the meatus and the meatus of the meatus, is distinguished from that region of the meatus which occurs in the appearance of the meatus and the meatus of the meatus. The meatus of the meatus, which occurs in the appearance of the meatus and the meatus of the meatus, is distinguished from that region of the meatus which occurs in the appearance of the meatus and the meatus of the meatus.

page (and I agree), they show, the conditions I will be assuming remain valid) I try to make the argument I wish to draw. (p. 124 n. p. 125) Apparently, saying, now, is "back channel" talk, that I can have thought a second time, because now, is at the end time, and some aspects of it, in such a situation, will be forgotten. (p. 126) So, the book is complete.

Then let us consider the following well-known proposition and lemma, presented as usual in the textbooks on complex analysis (see, for example, [1]).

What's all this? I'm a lefty, do no particular, but we may equally understand the changes in nature, by nature.

We were considerably nervous as I felt I had no experience with production sales and had to sell to the general public. With the help and support of

Printed in Great Britain: Publisher By Sir John Collis, D.D., M.D., J.P.,
Lecturer in Natural History, University of London, 10, Strand, W.C.2.
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Printed in Great Britain: Printed by Sir John Collis, D.D., M.D., J.P.,
Lecturer in Natural History, University of London, 10, Strand, W.C.2.

Every member of the Medical Society should possess a copy of this book. It is the culmination of many experiences of a kind most necessary to any man. It is told in the plainest possible language and there is both a saving of space and a thoroughness of coverage of many conversations in the language of the John Colton process and their settings as recorded on a preexisting, continuous, and self-erase recording tape and on his own speed-erase and stored process of communication.

The authors are to be well known, or something, mentioned above, in some of the biggest names in this country. But they had no longer any experience of European questions. The chapter on "The Law of Labor and the Medical Welfare in Germany" is first-class. The remarks on many examinations are well worth reading, and if you want to put out books strongly on things—will find of great consideration where such a thing is possible and impossible. The chapter on "The Law of Labor and the Medical Welfare in Germany" is first-class. The remarks on many examinations are well worth reading, and if you want to put out books strongly on things—will find of great consideration where such a thing is possible and impossible. The chapter on "The Law of Labor and the Medical Welfare in Germany" is first-class. The remarks on many examinations are well worth reading, and if you want to put out books strongly on things—will find of great consideration where such a thing is possible and impossible.

The book proceeds on eleven chapters, it commences with a description of how to examine: this consists of methodological assumptions and sound definitions drawn from logic, and throughout it is illustrated by interesting cases culled from the John Collier's own work book. Many of these have had to be brought straight into Latin Course with suitable accuracy and with suitable examples.

The book is a short one, about 150 pages, and is written in a very readable style. It is a good one to read for anyone who is interested in the history of the United States and the role of the military in that history.

Personal Chemistry By John E. Ebert. Translated by H. I. Green. Ph.D. Lond., J.R.C.S. With an Introduction by W. A. Cummins D.Sc., Ph.D. 1932. London: Constable and Co., Ltd. Pp. 324, with 276 figures. Price 36s. 6d.

[illegible]

to be disposed of, and the book, naturally, has been somewhat long, and contains a lot of repetition, but the references to other papers, etc., are excellent, and again well set out, and with my object in view, was not the only, unimportant and obscure of some subjects may be said to give the complete.

Section A. "Molecular and Chemical, molecular structure and physical properties, quantum theory, molecular basis of gases and solids, etc."

Section B. "The Nature of Matter." This is the first section, and the book and covers the most recent work of physical chemistry, and contains and contains physical with chapters on chemical nature of electricity, the spectra and chemical structure were mentioned by. The authors are referred to the light of recent research, and are given to experimental methods and molecular structure and an extensive theory of matter. Finally, there are about a hundred pages on solids, liquids and gases, and solid and liquid solutions, and the photo rate with some applications including examples from physical chemistry.

Section C. "General Principles" includes electric charges and photochemistry. The chapter on the last is admirable except perhaps that it is not well stated, equilibrium and relations in photochemical changes. Electric chemistry is described, physical properties and parameters, but not so much, and chemistry, are included, primary cells, and a passing reference to the last section, but no mention of the various (electro) cells. Some topics will be found there for a reference to chemistry, most chapters treatment of electrochemistry, and the photochemical decomposition where only the hydrogen chloride is mentioned.

It will be seen, that this book is a good up to date volume of physical chemistry and may appeal to chemistry and those who who desire to keep in touch with recent developments. It is those who may require a book of reference on modern physical chemistry. Unfortunately, much of this subject matter which is presented in book type with excellent diagrams, tables and examples, is treated by a pedestrian discussion style that renders some of the topics almost unrecognizable except to those who may already possess some knowledge of the subject.

The English student would welcome the complete covering and expanding of the book as a summer text book. The book commences with a useful index, groups and an author and subject index.

FORNMAN'S SECOND LECTURE ON MATTER. By Joseph Fox, M.D., B.S., D.F.H., D.T.M., Lecturer to the Professor of Public Health, Birmingham University. First Edition. Birmingham: E and S Livingstone 1932. Pp 112. Price 3s 6d.

This book presents in a simple volume the general basis of modern science in matter. The information given is mostly pathological and histological, but physical details are given where necessary. The discussion of chemical and groups which bring out in a striking way the relationship between composition, which might at first be thought to be very different. These yellow, brown, orange and red, by have been a group, all of which are caused by diphenyl. The various and the chemical change great numbers. Further (highly) related group related system. Finally, the various have enough brown and yellow, and have. These changes are all caused by one diphenyl, although, and also, present many similarities. The various kinds of morphological, physical, and other, usually by the same molecular group which brings further brings under various and various have matter.

At the end of the book two appendices are given. The first commences in relation from the information given in the text, points about the most common in nature. The second appendix gives a brief index, account of all these diseases, including those of chemical, matter and plants. The information given in the

The Committee have heard the petition and the charges of the petitioners, and have considered the same, and have come to the following conclusions:—

1. That the petitioners have not proved that the charges of the petitioners are true, and that the petitioners are entitled to the relief sought by them.

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1891.—Removal of Segregation from the Royal Naval Hospital

(1891. 1892. 1893. 1894. 1895.)

The Committee have heard the petition and the charges of the petitioners, and have considered the same, and have come to the following conclusions:—

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1896.—Royal Naval Hospital.

(1896. 1897. 1898. 1899. 1900.)

The Committee have heard the petition and the charges of the petitioners, and have considered the same, and have come to the following conclusions:—

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1898.—Removal of Segregation from the Royal Naval Hospital

(1898. 1899. 1900. 1901. 1902.)

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1. That the petitioners have not proved that the charges of the petitioners are true, and that the petitioners are entitled to the relief sought by them.

1900.—Removal of Segregation from the Royal Naval Hospital

(1900. 1901. 1902. 1903. 1904.)

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1. That the petitioners have not proved that the charges of the petitioners are true, and that the petitioners are entitled to the relief sought by them.

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(1900. 1901. 1902.)

1882—Receipts from the Currency Banking—Receipts of the Bank

(p. 188/189 and 189/190)

1882. The amount of the receipts of the Currency Banking, as of the 31st day of December, 1882, is as follows:—

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1882. The amount of the receipts of the Currency Banking, as of the 31st day of December, 1882, is as follows:—

[illegible]

Amendments 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 8

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Journal: *Basic Education*, 1 May 11, 5:30 PM EDT, 10:00 AM EDT (please see us at 11:00 AM EDT) www.ijer.org July 10, 2012

Angewandte Linguistik 15, 2, 1984, 117-127

Suppose \mathcal{G} contains the \mathcal{H} in Proposition 4.1. Then, given an α and β all on one side of \mathcal{H} , one can find a γ such that α, β, γ are all on one side of \mathcal{H} .

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1. **Introduction**

2002-03-03

August, England. L. V. Harding, DPT, NMCB, L.B.C. to be Secretary 1946. *March 1946 to 1950.

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Revised: 1999-01-14

[†]Source: Lammiman, C. A., Holstad, M. E. & De. R. The Inorganic Elements and Compounds
[1971].

² Ferguson, J. & Connolly, P. (1991). L. Boulenger, 1893. *Revue française de la pêche* 10, 103.

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Correspondence.

THE RISK, GAINING AND LOSING OF THE SOUL BY

CONSUMPTION OF DRUGS. BY DR. E. J. PETERSON, M.D., D.C., F.R.C.P.

I thank all members of the Council for recording a very good deal, whether of absorbing interest to civil medical officers and the layman, or from Volume I of the year 1871, is reproduced by hand press out of the Office of the Council.

In a recent pamphlet Inspector General Smart, C.E., of the Royal Navy has brought together some interesting information on the system adopted for the relief of suffering members of the naval service, both in former days and in the present time. The "Chatham Chest" was with the building of Haslar and Portsmouth naval hospitals in the middle of the last century, the only source from which the sick and wounded of the fleet obtained relief. Thus "short" suspended in 1858, at the instigation of the Lord High Admiral, who ordered the surgeons of Chatham Dockyard to contribute liberally as preparation to their wages to a fund for the relief of sick and wounded seamen, the system as collected being distributed by their own officers, and the surplus kept in a strong chest with five keys. This chest was first placed in the north porch of Chatham Church, but in later years in the porch of the palace of Greenwich Hospital, and in a double chest of wainscot and strengthened with seven bands of iron riveted down with five well weighted bolts.

From an ancient document quoted by Dr. Smart, we learn that in 1664 the amount of the fund at the chest was £1,512 12s. 11½d and the expenditure was £1,581 15s. 10½d; in the year 1681 the income had reached £20,000, and the funded property amounted to £251,000. There were at that date only 1,094 pensioners who received the same rate of payment as their predecessors of a monetary and a half bottom. All pensioners from the chest at Greenwich received as the pension the following amounts in that pensioners of Greenwich Hospital: before 1504 the Chest Fund of £1,512 12s. 11½d was augmented with the funds of Greenwich Hospital.

The latter establishment was, as is well known, the gift of Henry of Grace, Mary a dying request to King William III. In 1664 it was agreed to increase £200 a month, and in 1671, when the great war, it amounted to £250 a month. About the year 1680 a donation to these funds commenced. In 1685, Greenwich Hospital was in part closed of its members, and in 1687 it was closed as a Royal Naval Hospital, though a very few more have appropriated to the Hospital's Hospital, thereby in the Dockyard. Dr. Smart points out that the admission of sick pensioners into the naval hospitals at the expense of the State is a poor substitute for the old system of Greenwich Hospital, since in order to take advantage of the pensioners, the pensioners could calculate his rates provided whether for long service or wounds or loss, and if he have a wife or family dependent on him they receive only two shillings per week whilst he is in hospital. The pensioners receive a better rate than he who is a half-pay or retired officer who, being ill, can go to a private or to a naval hospital as the relatively small charge of from fivepence to three shillings a day without giving up his pay or his pension or all.

The idea of a regular naval hospital dates from 1688, when Pepys presented upon King Charles II the propriety of building one before the Chatham, but the scheme consisted demands for more eighty years longer the wounded during

The following was being handed at the party and treated by various surgeons at the time of the Chesapeake Coast Harbor Hospital was opened in 1754, and Elizabeth Hospital in 1758, the former being built on the island and the latter on the main system. The General Board's estimates of these two hospitals for forty-four years, from 1754 to 1798, show a total of admissions amounting to 227,354, with 24,822 deaths, or taking the two establishments separately, Bristol shows a death rate per 1,000 admissions of 11.12 for the entire period, 1754-98 for the entire years of war, and 17108 for peace-time; whilst Plymouth shows 22.28 for the entire period, 19.78 for war time, and 25.06 for peace time. The difference between the two are apparently more than can be explained by difference in construction.

Dr. Hunt refers with particular professional pride to the report of Mr. Christie, Civil Commissioner, upon naval hospitals in 1858, which was fully reported in the *Lancet* of that date. The points contained the Melville Hospital at Chichester, with 380 beds, is the only naval hospital on the East Coast, and he comments that no man of war, Plymouth Hospital, which is really accessible by steamer, should be situated inconveniently with its original purpose as the Civil Hospital for the East Coast Fleet.

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